

KIC 002300529

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R_{\star} (R_{\odot}) | T_{\star} (K) | R_p (R_{\oplus}) | S_p (S_{\oplus}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 002300529-01 | OBS | No | 0.637988 | 131.690539 | 208.9 | 1.317 | 12.4 | 9.8 | 1.83 | 7247 | 2.71 | 29065.42 |
| 002300529-02 | OBS | No | 1.562671 | 132.042150 | 226.1 | 11.560 | 9.5 | 10.8 | 1.83 | 7247 | 3.75 | 8803.12 |
| 002300529-03 | OBS | No | 20.178561 | 148.449309 | 3567.4 | 1.112 | 10.7 | 11.6 | 1.83 | 7247 | 11.79 | 290.58 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 002300529-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT |
| 002300529-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 002300529-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

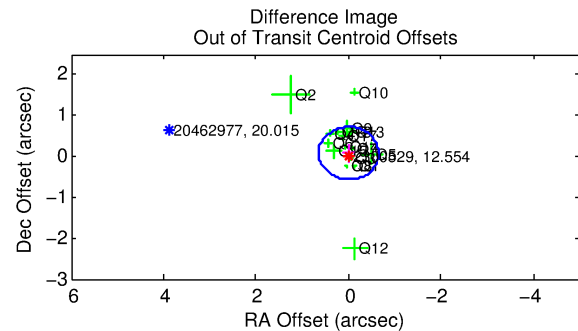
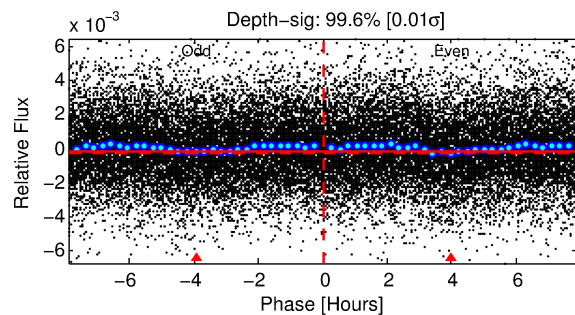
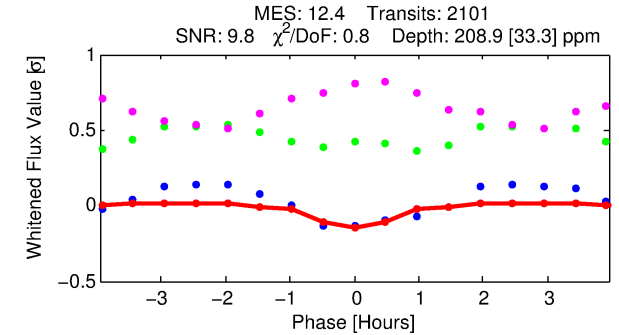
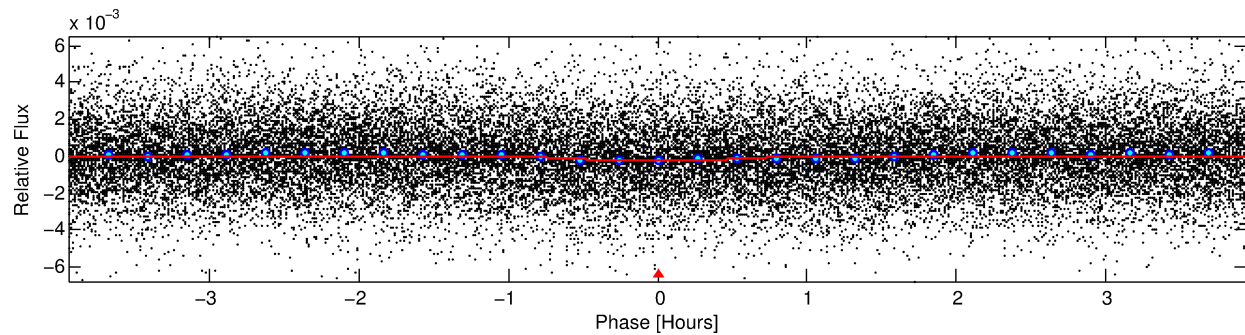
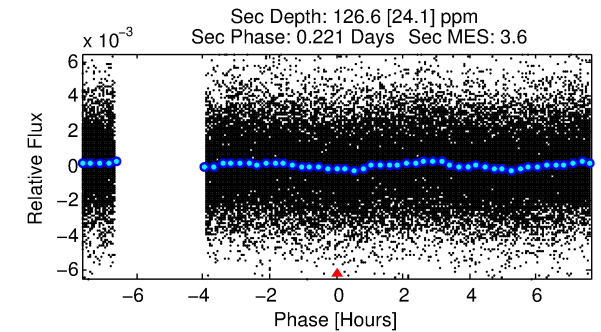
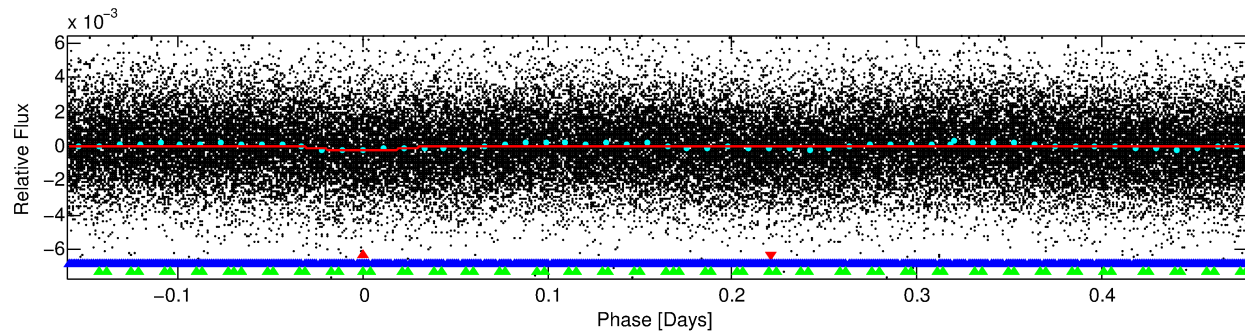
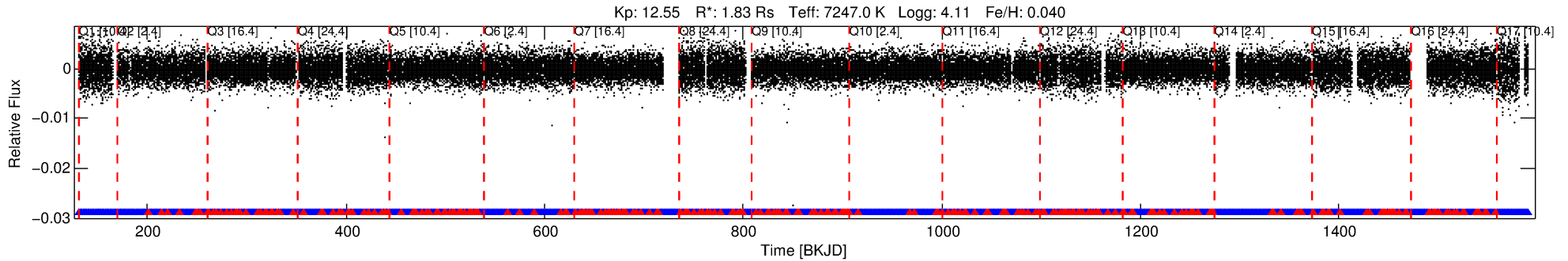
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002300529-01

No Significant Match Found

DV One-Page Summary

KIC: 2300529 Candidate: 1 of 3 Period: 0.638 d



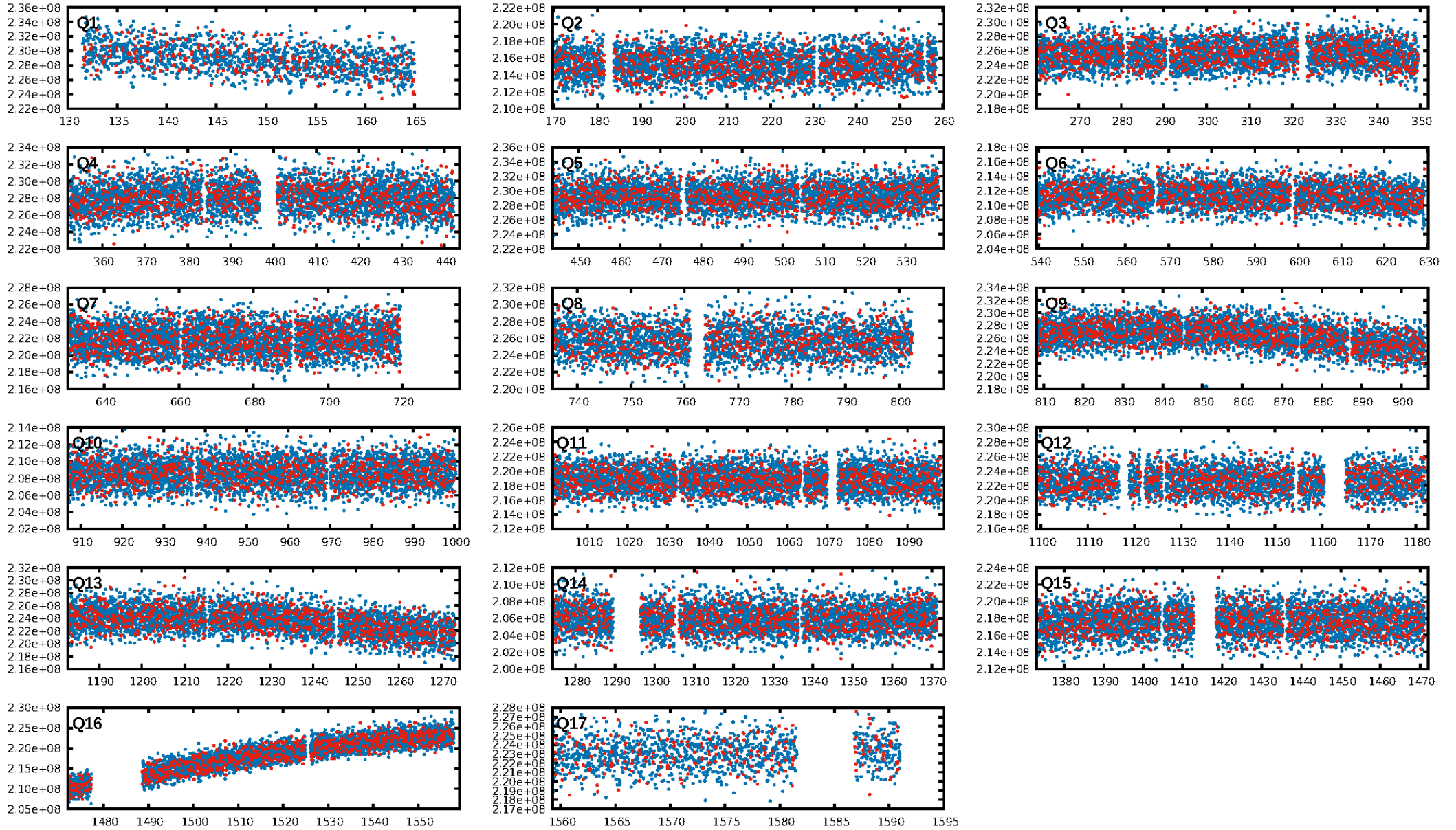
DV Fit Results:

Period = 0.63799 [0.00001] d
Epoch = 131.6905 [0.0027] BKJD
Rp/R* = 0.0136 [0.0138]
a/R* = 3.65 [20.42]
b = 0.28 [19.64]
Seff = 29065.42 [11806.80]
Teq = 3329 [338] K
Rp = 2.72 [2.89] Re
a = 0.0169 [0.0043] AU
Ag = 2.70 [5.62] [0.30σ]
Teffp = 6600 [3392] K [0.96σ]

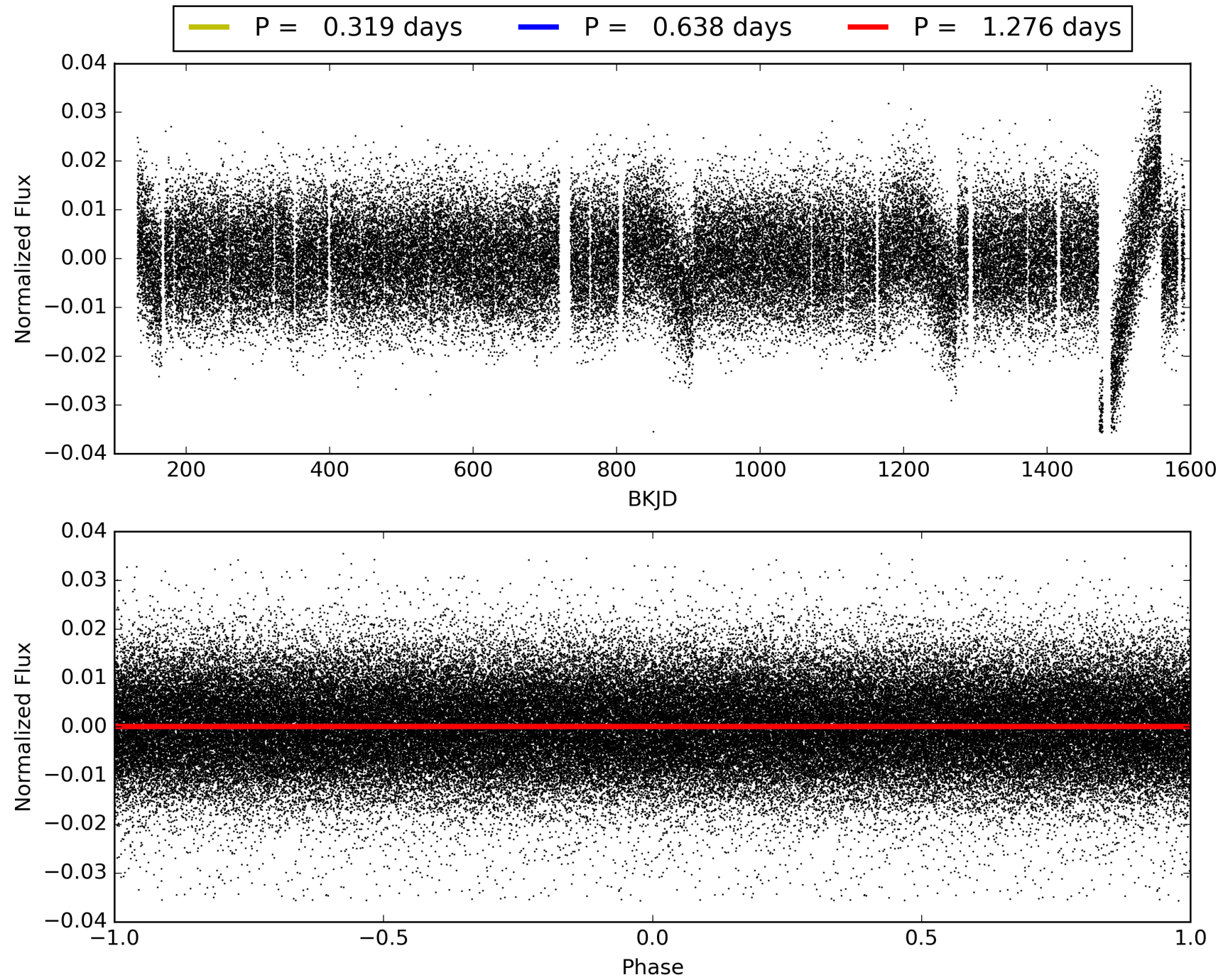
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 94.4% [1.91σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.25e-09
RollingBand-fgt: 0.87 [1738/2006]
GhostDiagnostic-chr: 2.24
Centroid-sig: 75.7%
Centroid-so: 0.282 arcsec [1.91σ]
OotOffset-rm: 0.077 arcsec [0.36σ]
KicOffset-rm: 0.179 arcsec [0.85σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002300529-01, PDC Light Curves

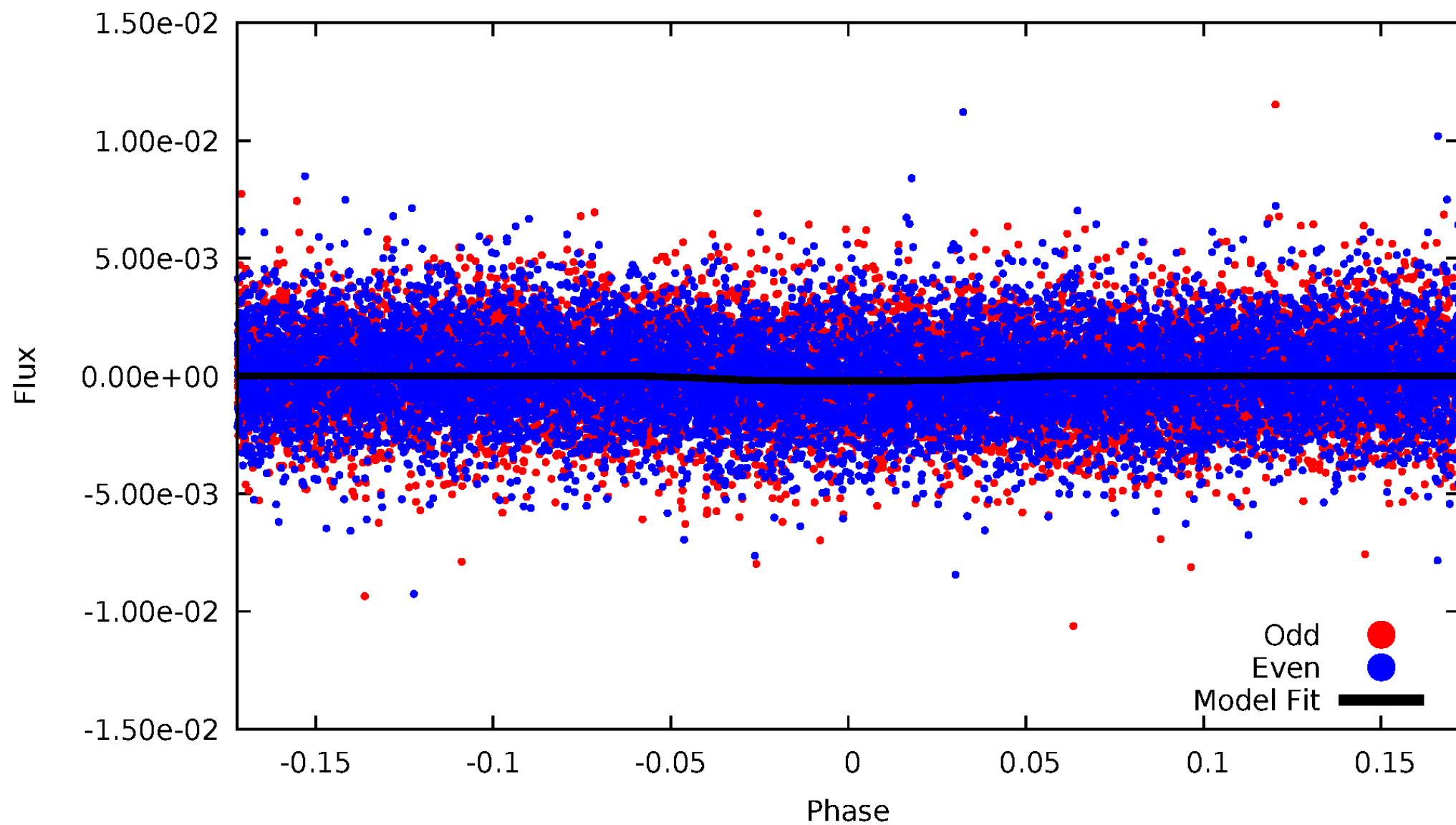


TCE 002300529-01



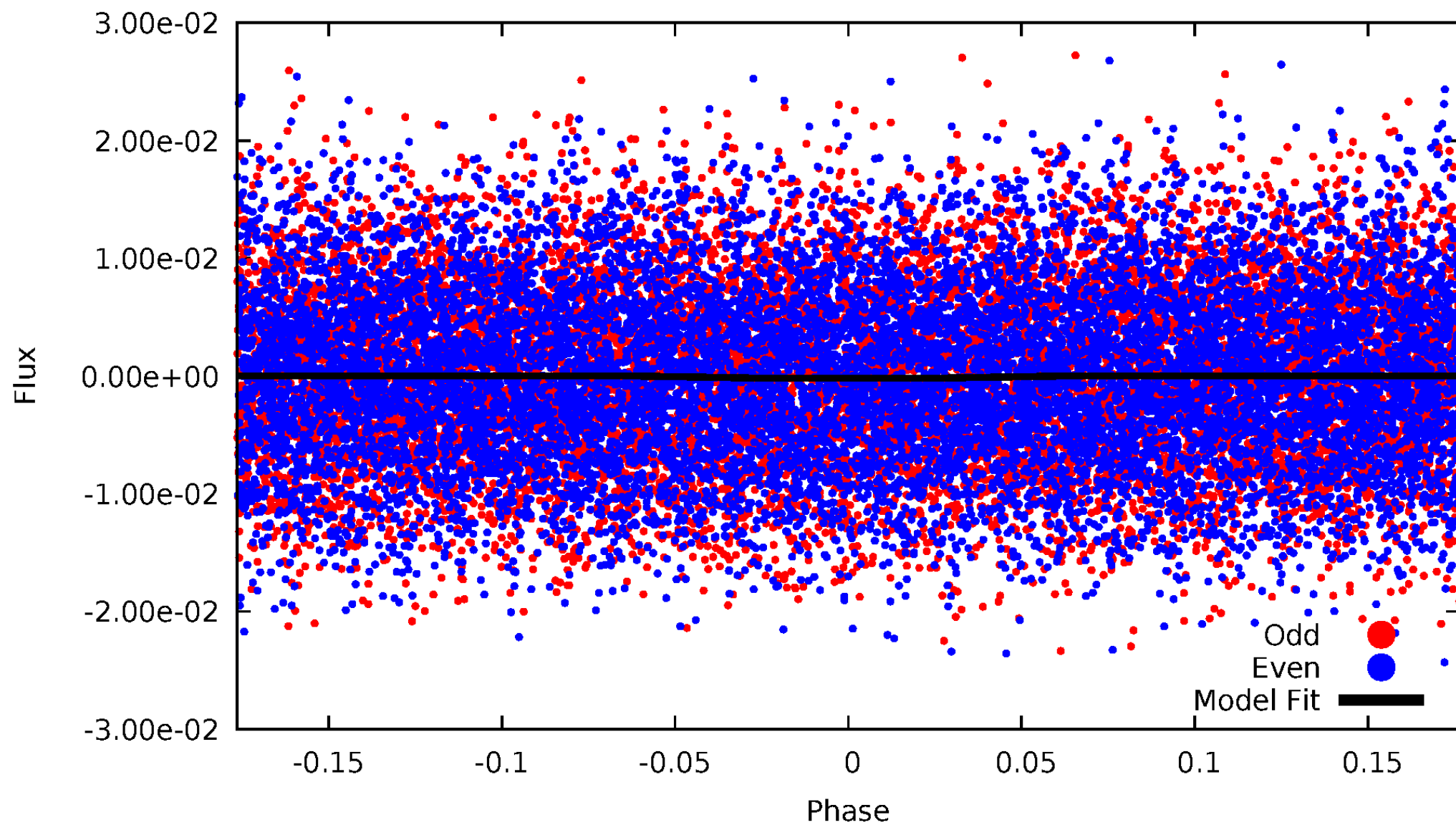
DV Odd/Even

TCE 002300529-01



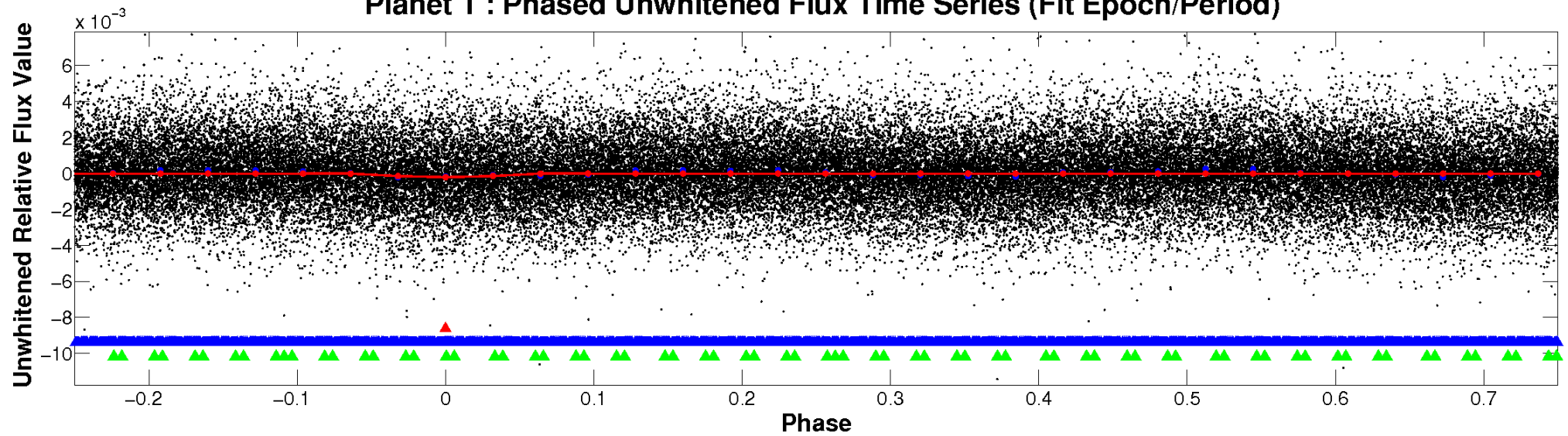
ALT Odd/Even

TCE 002300529-01

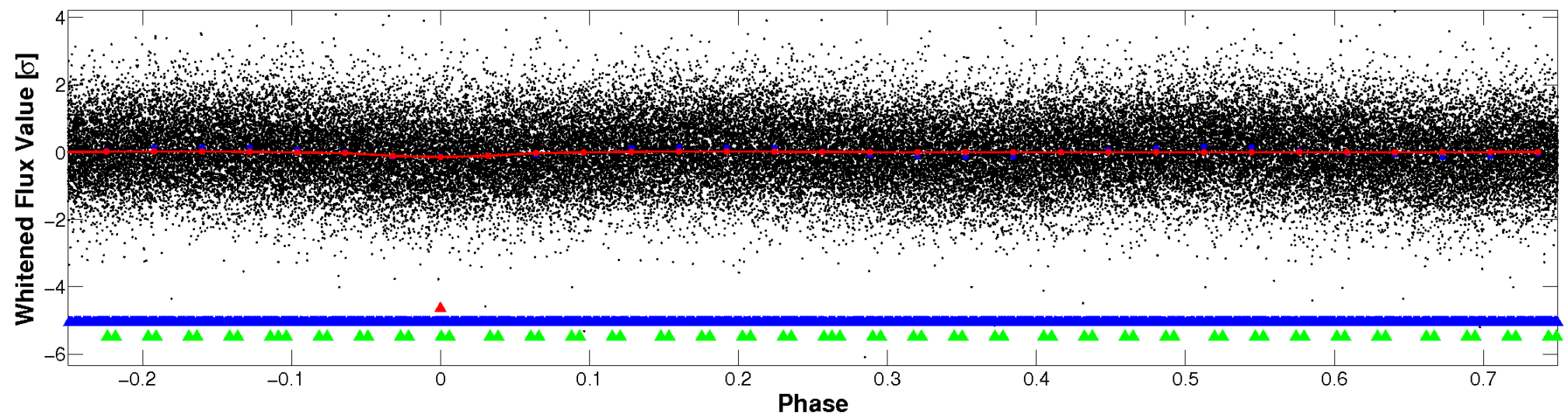


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

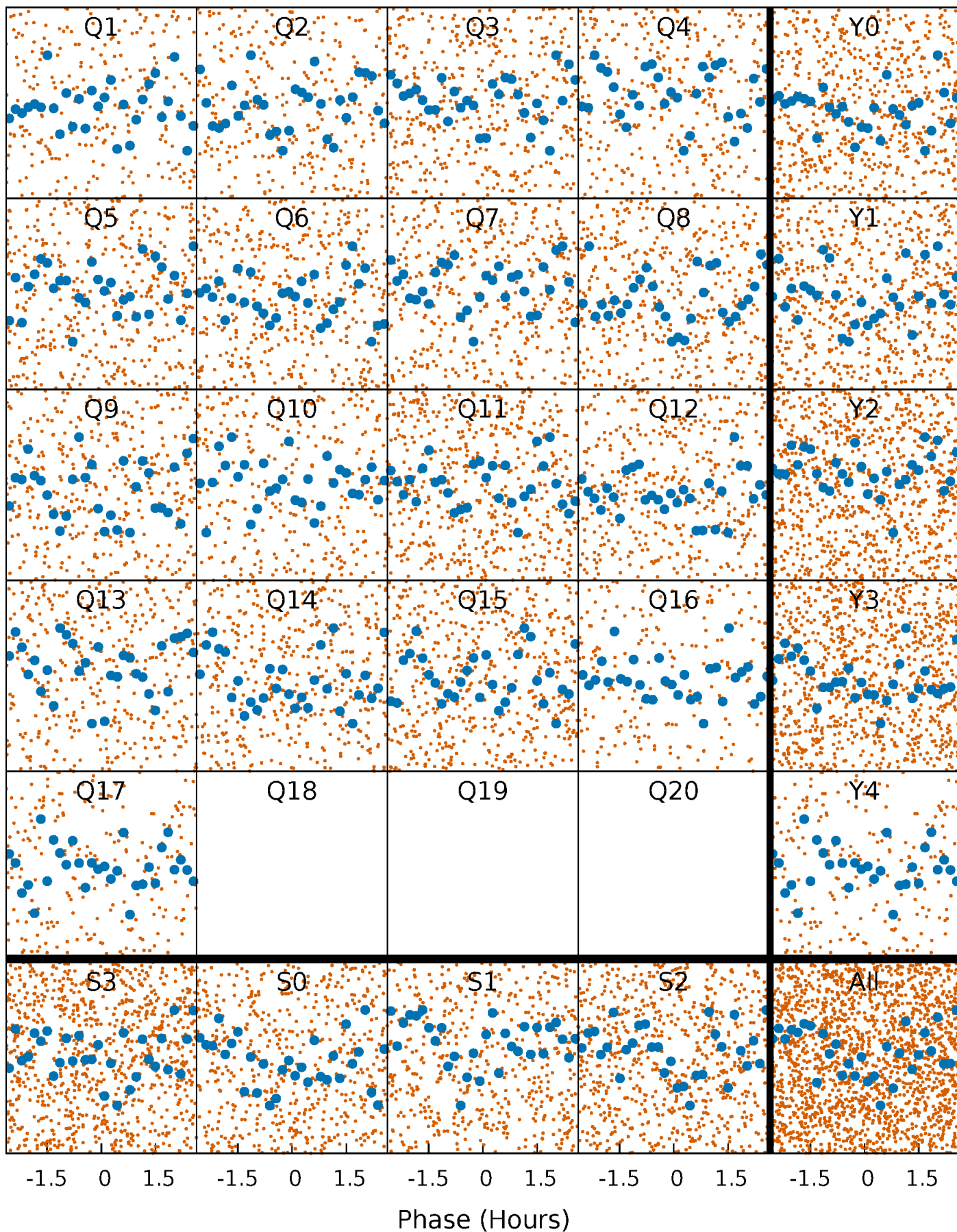


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



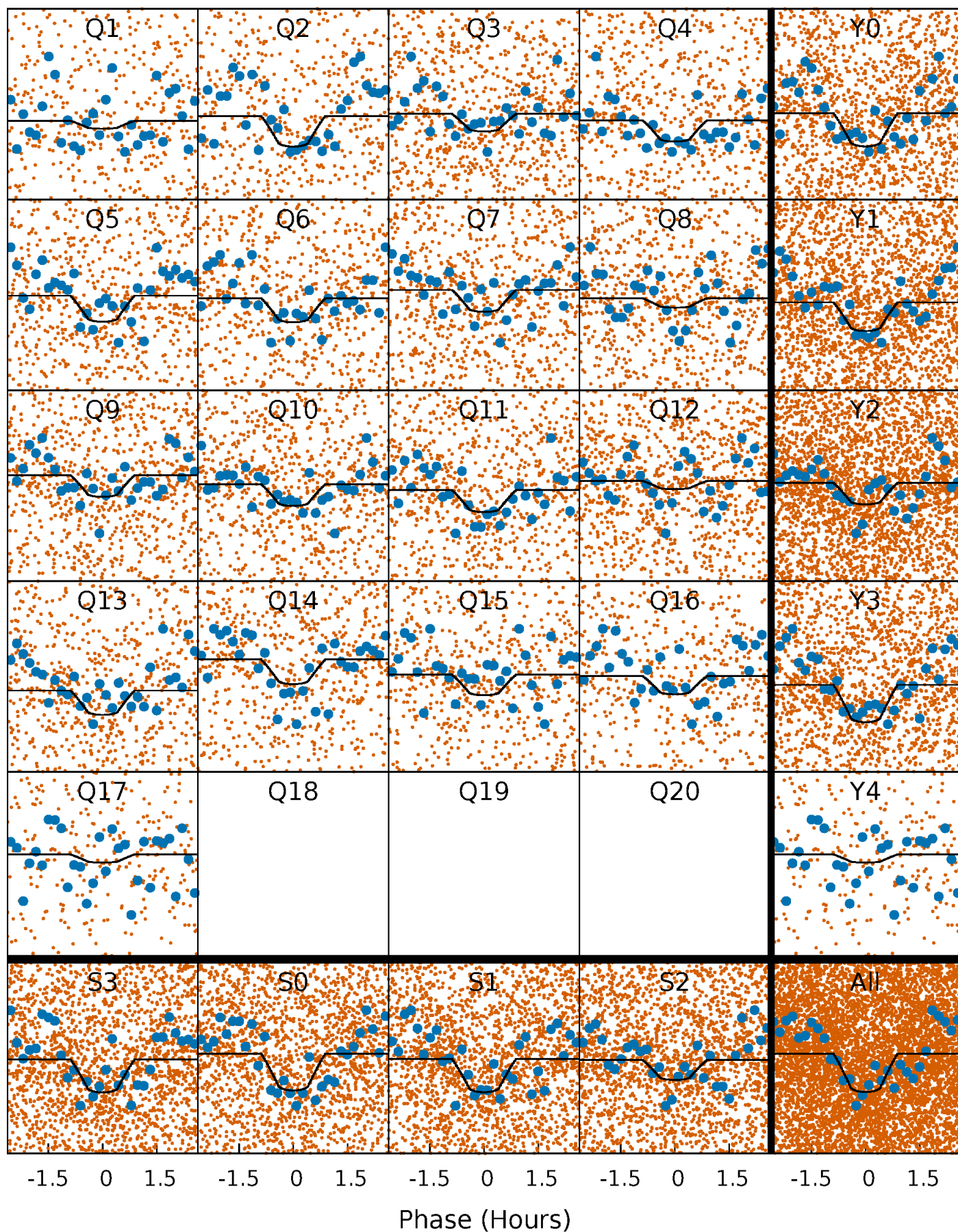
PDC Quarter-Phased Transit Curves

TCE 002300529-01 P= 0.637988 Days $T_0=131.690539$ (BKJD)



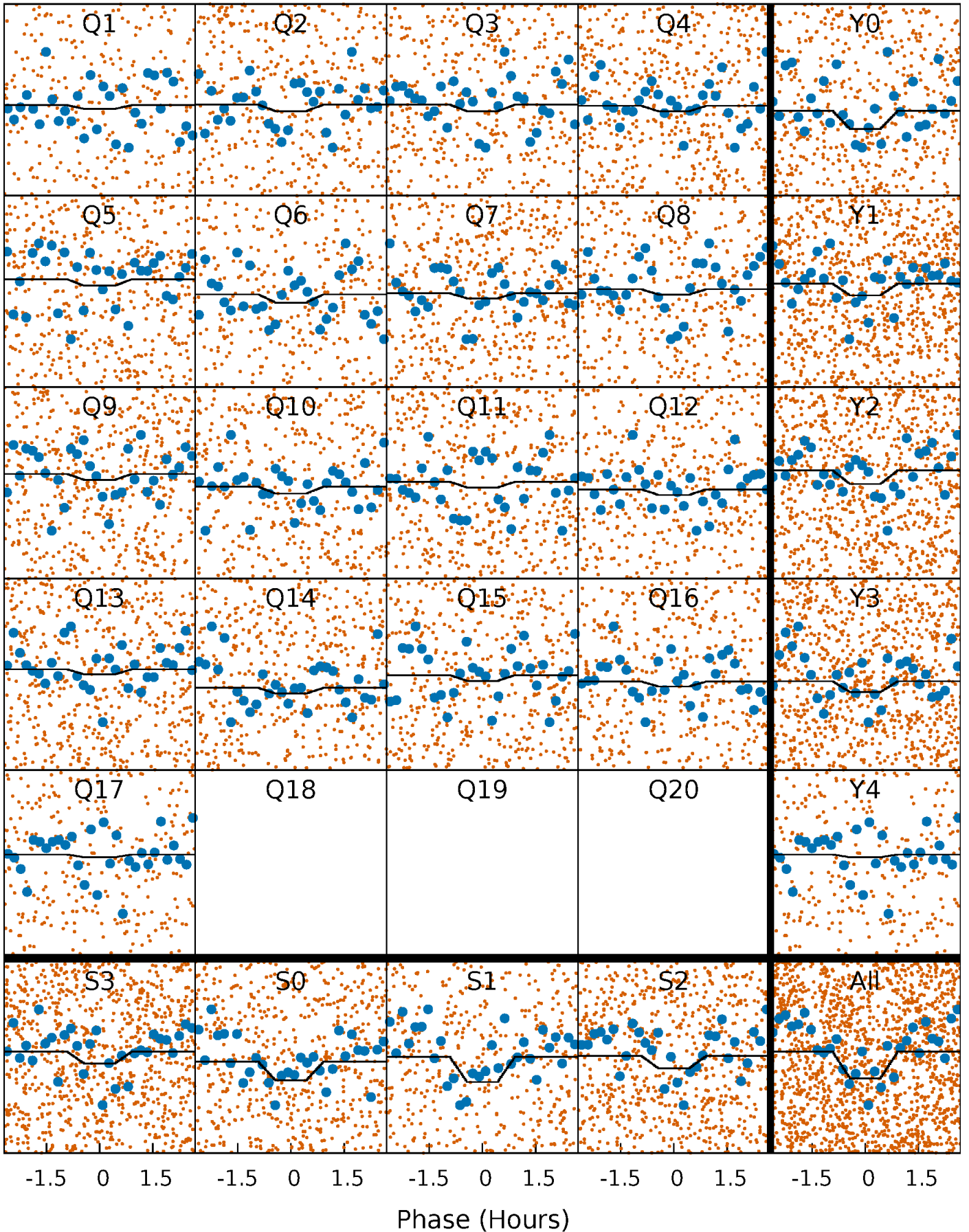
DV Quarter-Phased Transit Curves

TCE 002300529-01 P= 0.637988 Days $T_0=131.690539$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

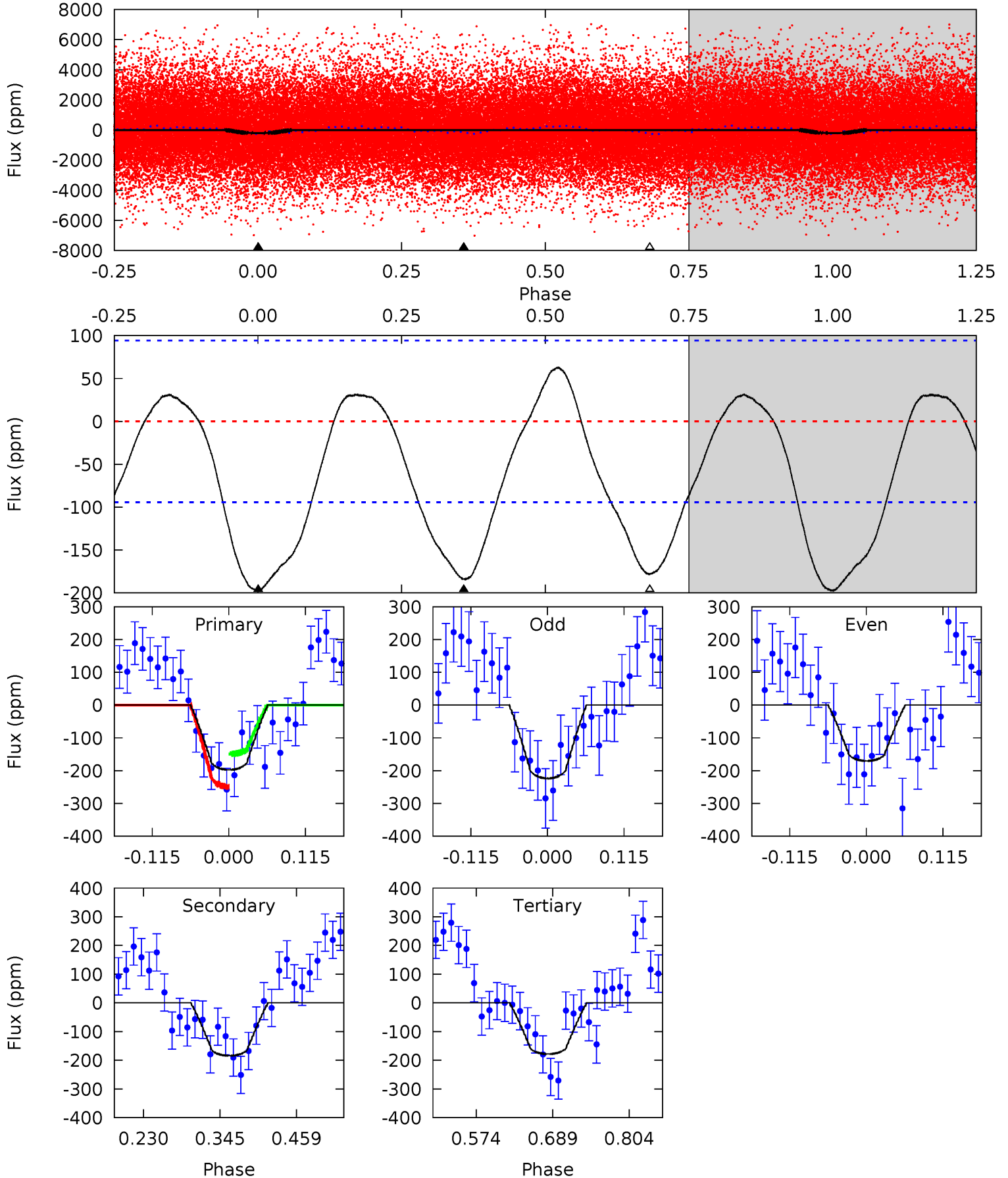
TCE 002300529-01 P= 0.637990 Days $T_0=131.690455$ (BKJD)



DV Model-Shift Uniqueness Test

002300529-01, P = 0.637988 Days, E = 131.052551 Days

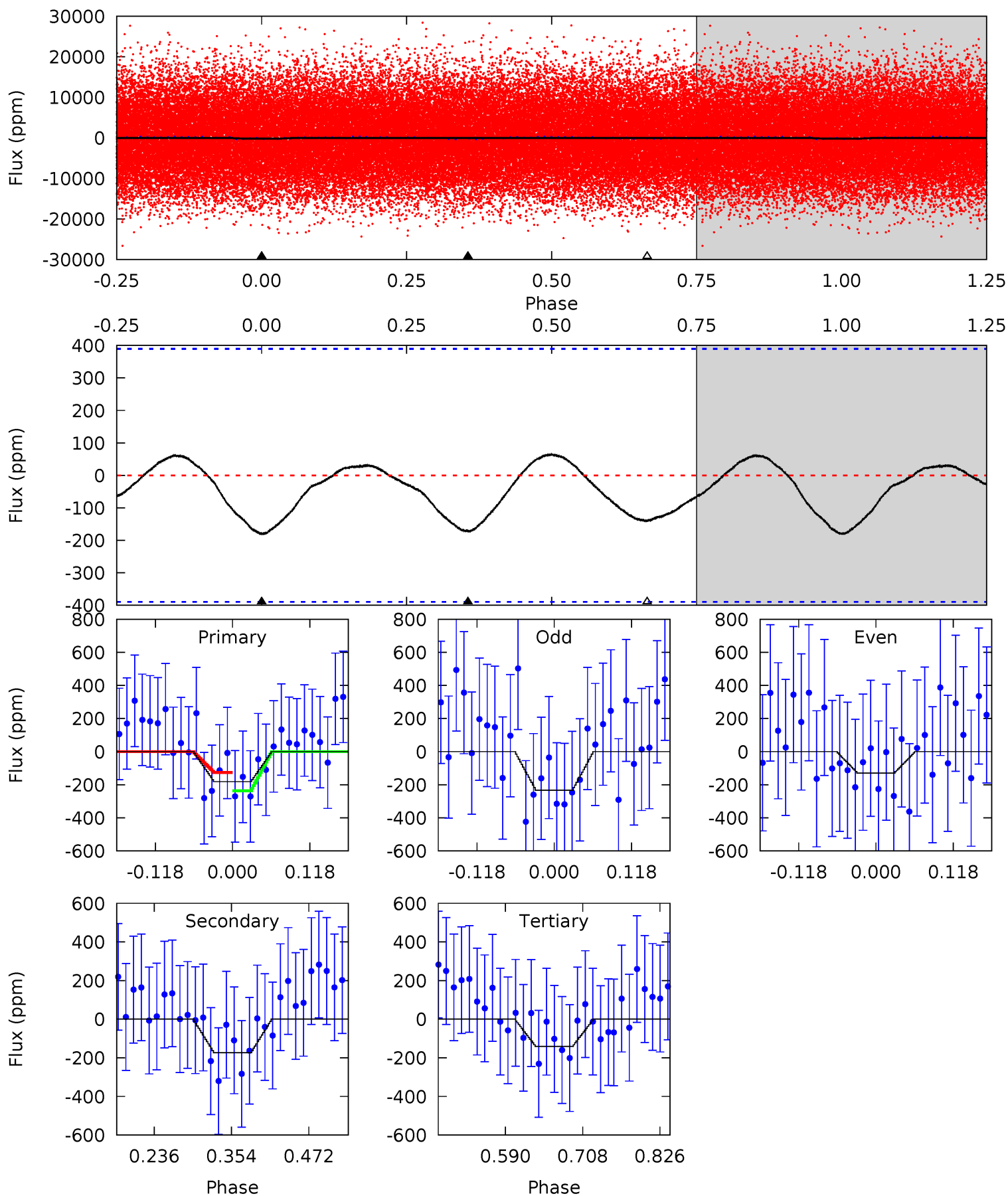
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.52 | 8.87 | 8.59 | 0 | 4.54 | 1.58 | 3.51 | 0.93 | 9.52 | 0.29 | 8.87 | 1.29 | 0.91 | 0.24 | 2.41 |



Alt Model-Shift Uniqueness Test

002300529-01, P = 0.637990 Days, E = 131.052465 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.11 | 2.02 | 1.64 | 0 | 4.53 | 1.56 | 0.77 | 0.47 | 2.11 | 0.38 | 2.02 | 0.60 | 0.88 | 0.27 | 0.65 |



Stellar Parameters For KIC 002300529

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7247^{+201}_{-345} | $4.111^{+0.128}_{-0.192}$ | $0.040^{+0.200}_{-0.350}$ | $1.834^{+0.563}_{-0.375}$ | $1.584^{+0.221}_{-0.265}$ | $0.361^{+0.279}_{-0.182}$ |
| | +3%/-5% | +3%/-5% | +500%/-875% | +31%/-20% | +14%/-17% | +77%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002300529-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -184 ± 21 | $3.40^{+2.52}_{-2.33}$ | 4650^{+326}_{-292} | 6264^{+7171}_{-1767} | $2.553^{+20.890}_{-1.764}$ |
| Alt. | -174 ± 86 | $3.29^{+2.78}_{-2.05}$ | 4670^{+408}_{-313} | 6059^{+5109}_{-2045} | $2.230^{+12.750}_{-1.669}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

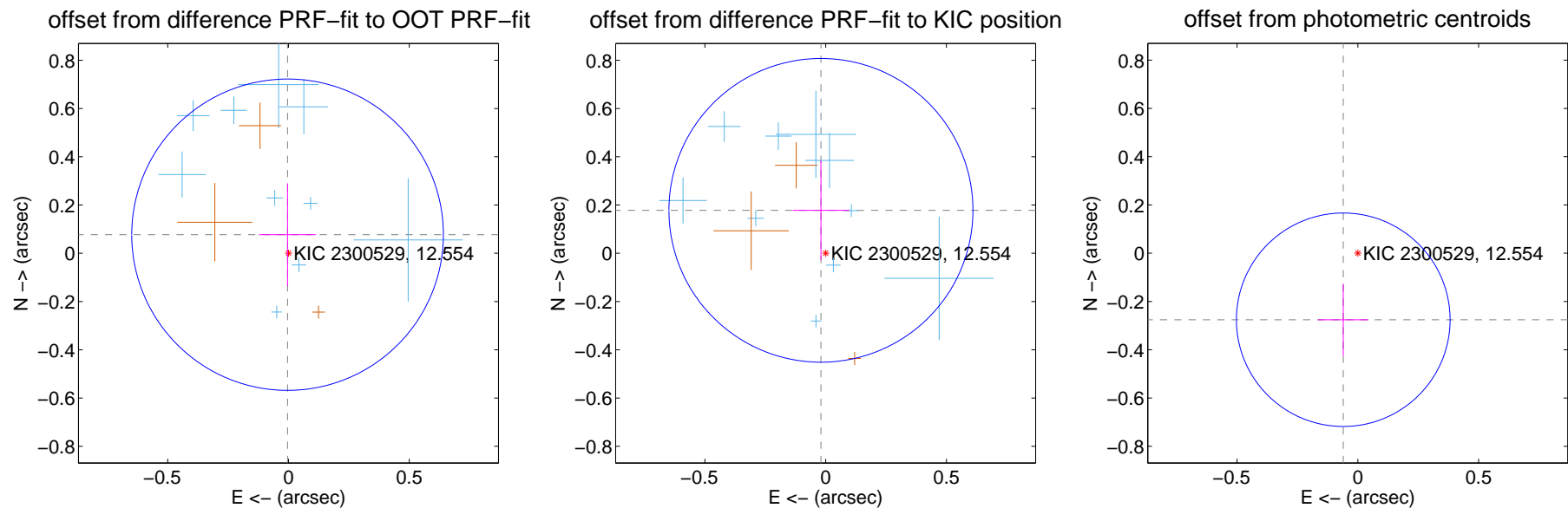
DV Centroid Data

Supplemental centroid analysis for 002300529-01. Kepler magnitude: 12.55. Transit SNR 9.77

There are 11 quarters with good PRF difference image offsets

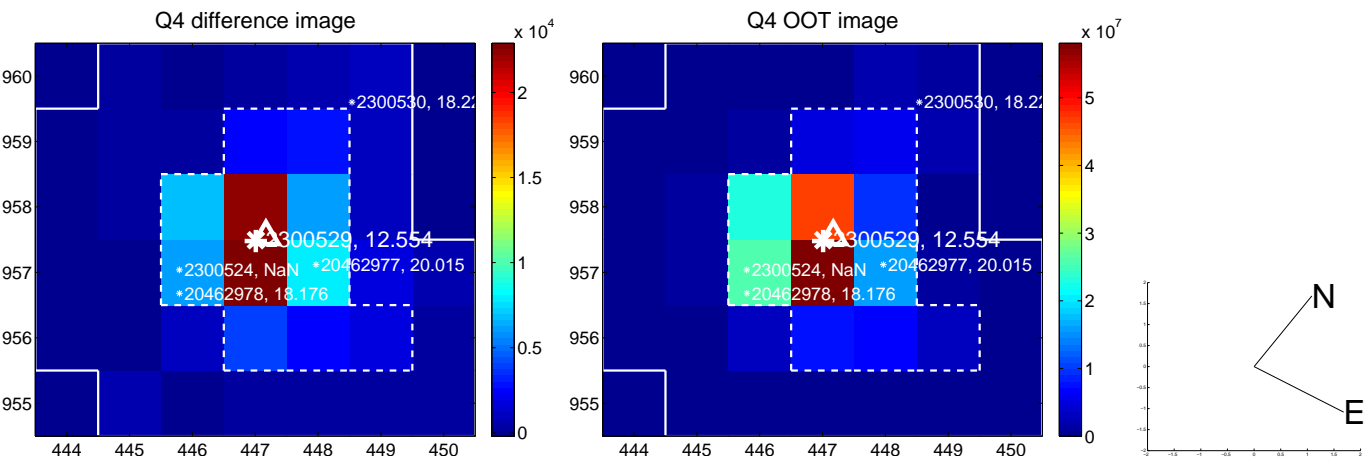
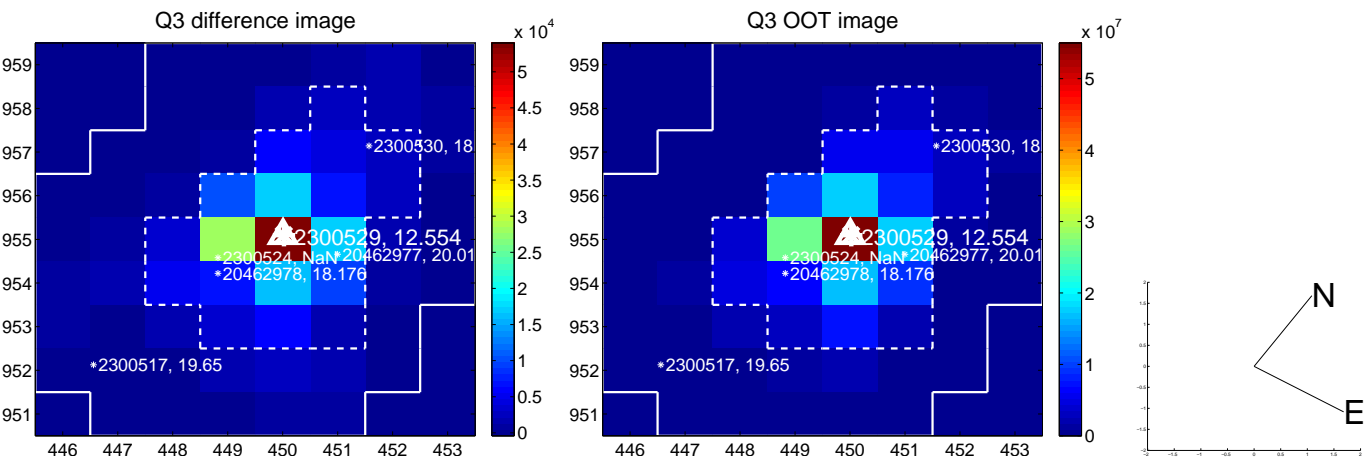
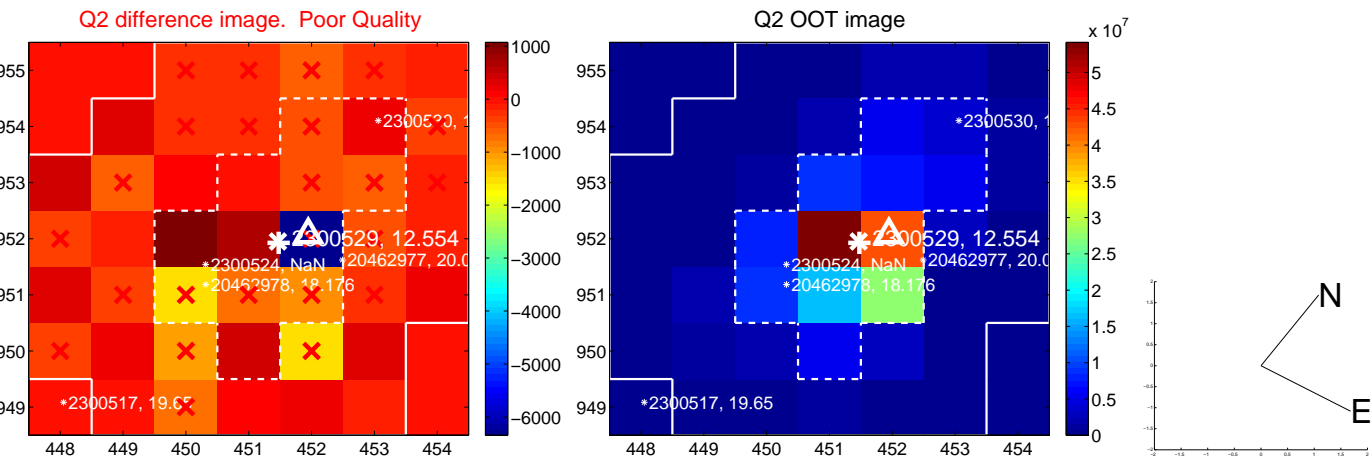
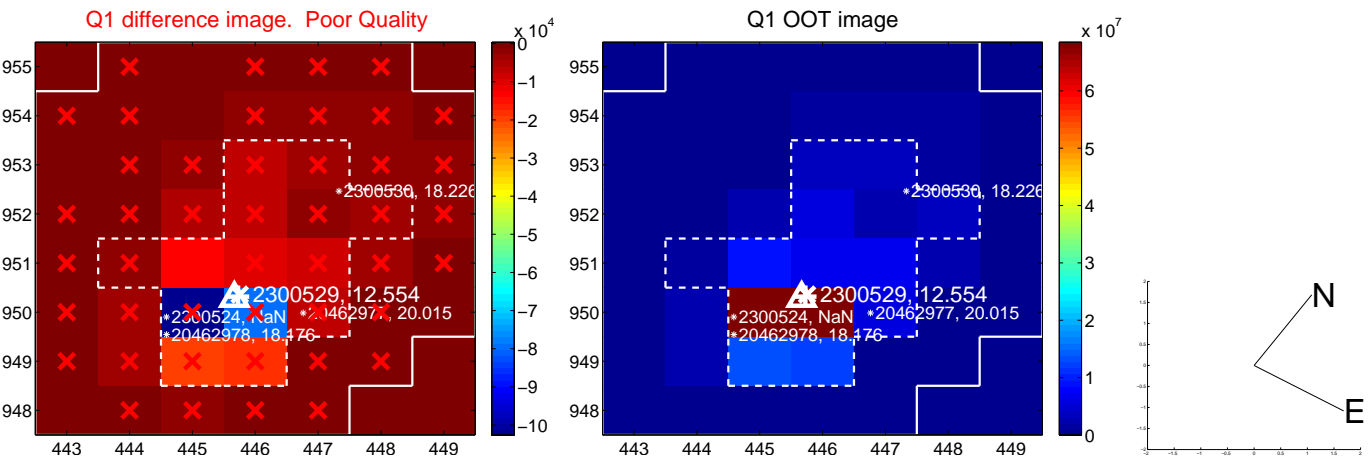
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.077 ± 0.215 | 0.36 | 0.004 ± 0.118 | 0.077 ± 0.213 |
| PRF-fit source offset from KIC position | 0.179 ± 0.210 | 0.85 | 0.020 ± 0.117 | 0.178 ± 0.206 |
| photometric centroid source offset | 0.28 ± 0.15 | 1.91 | 0.06 ± 0.10 | -0.28 ± 0.15 |

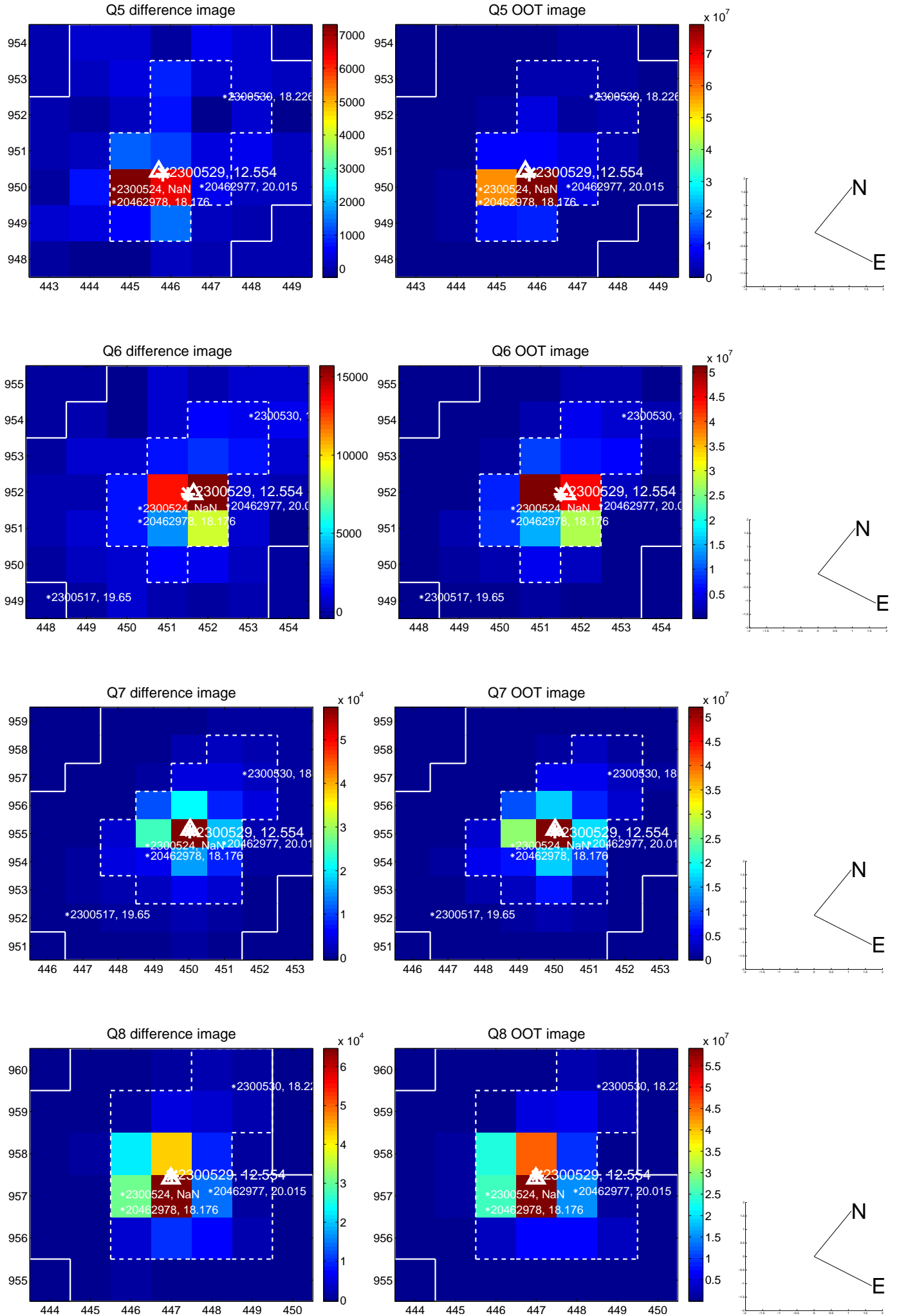


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

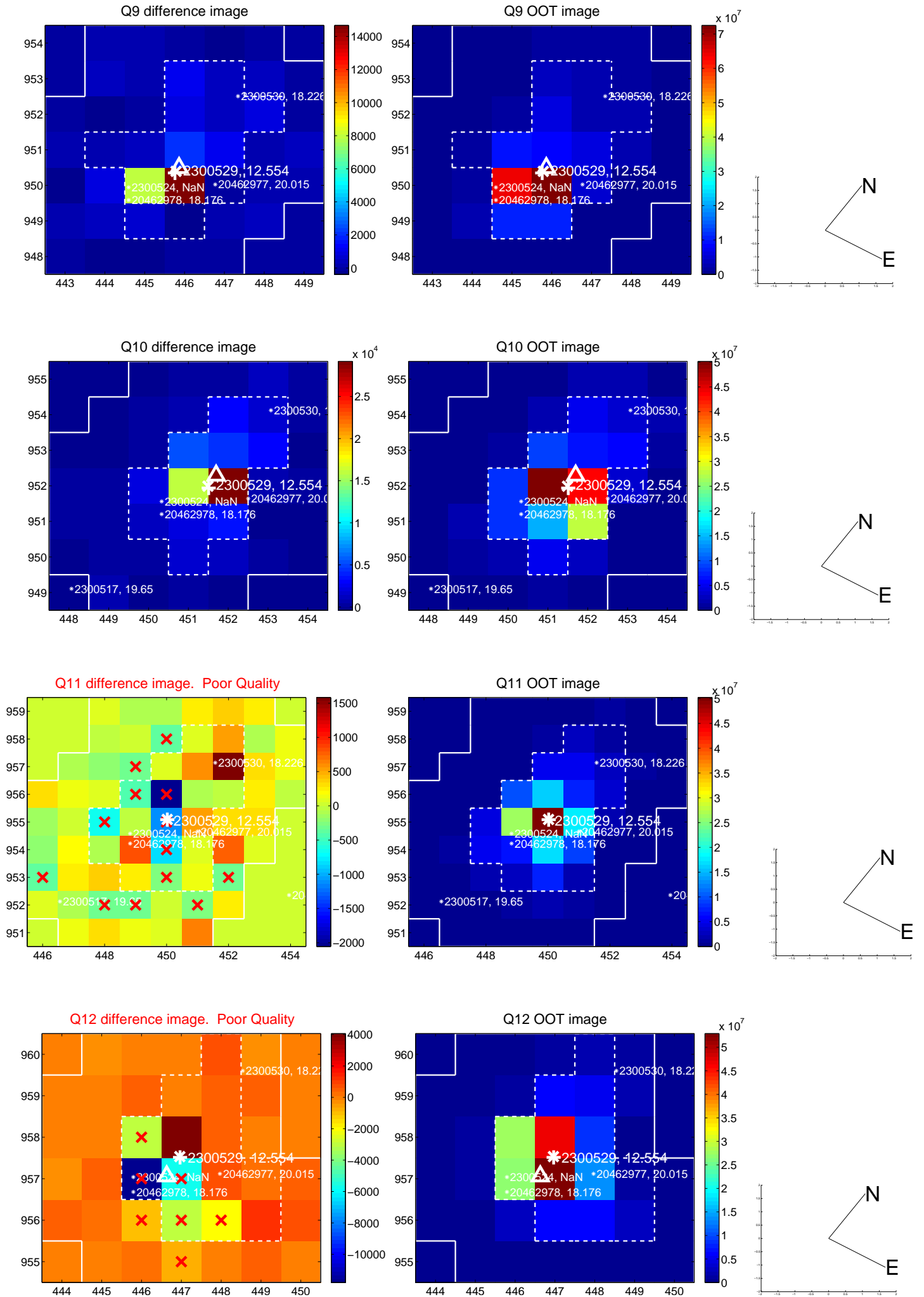
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



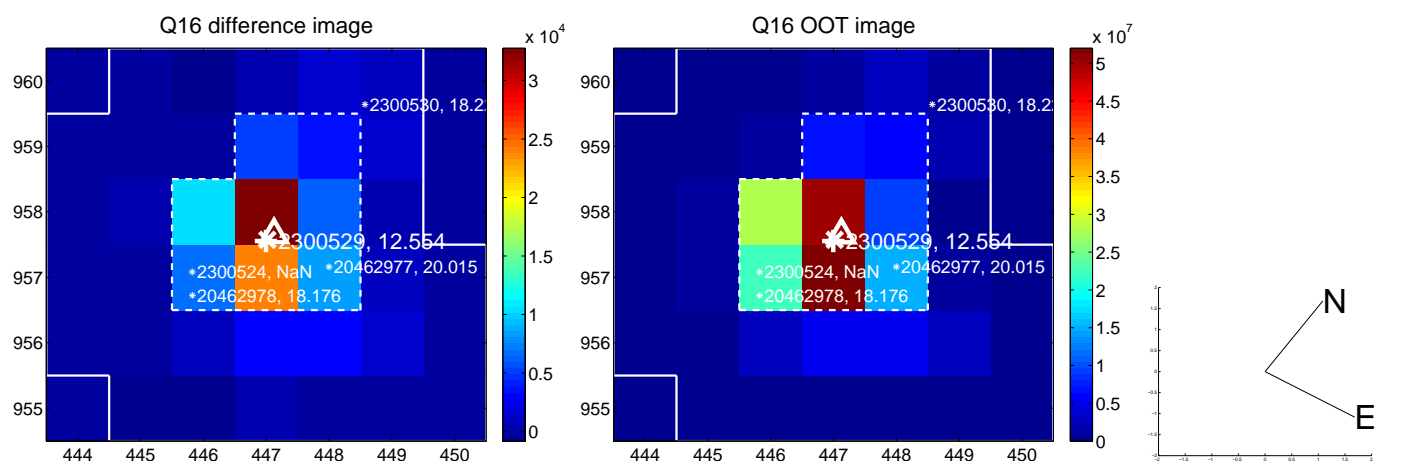
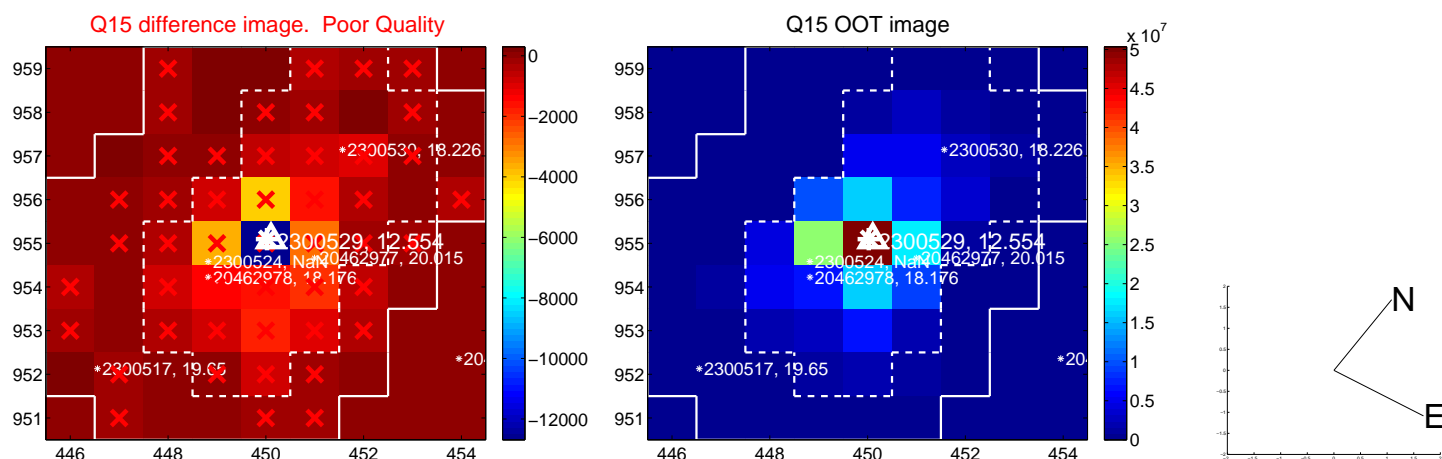
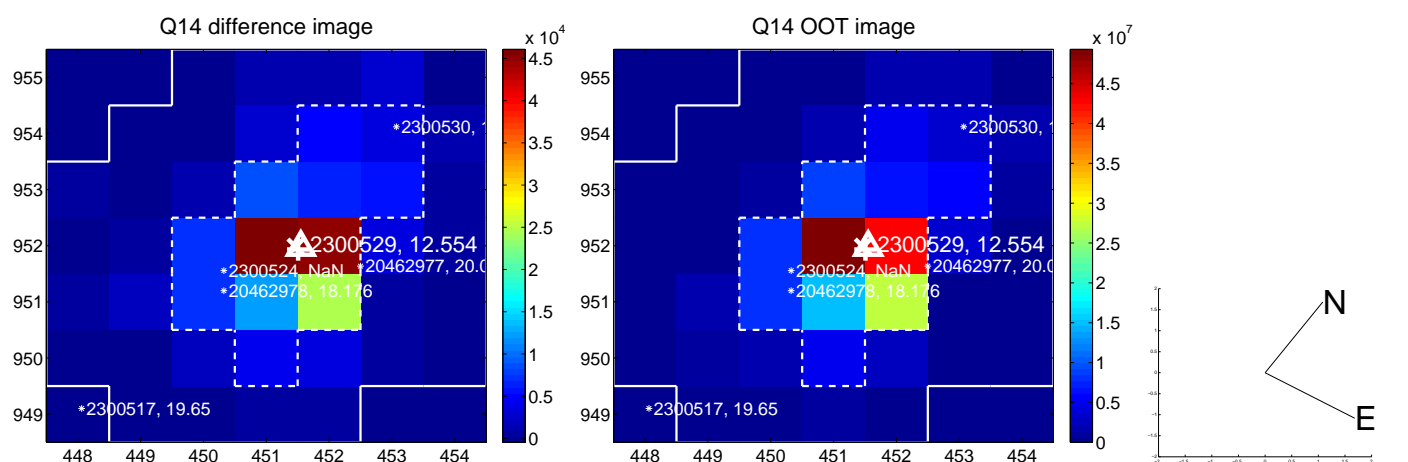
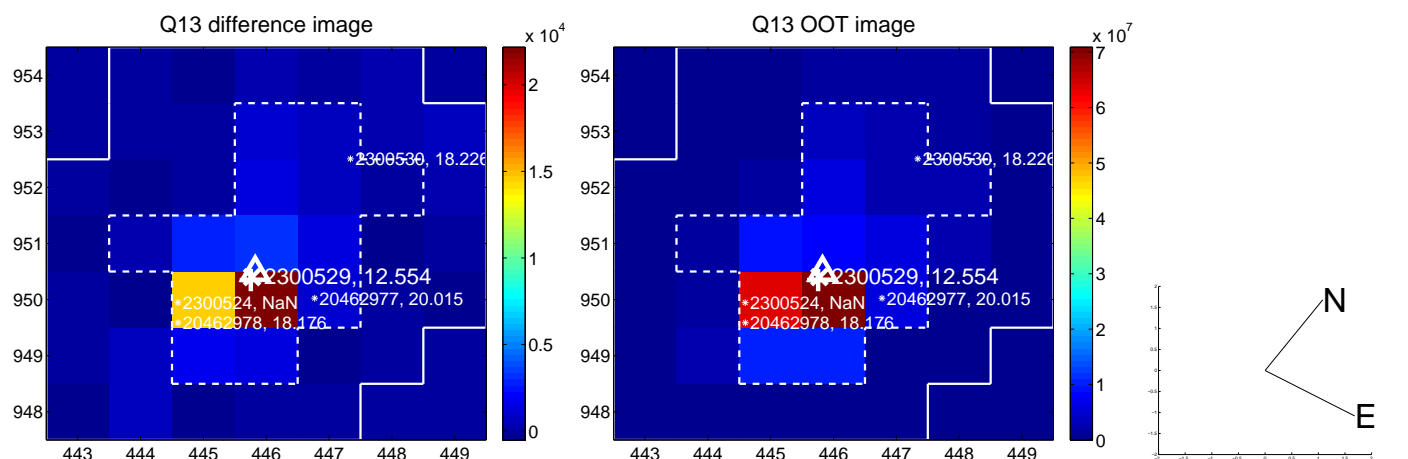
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



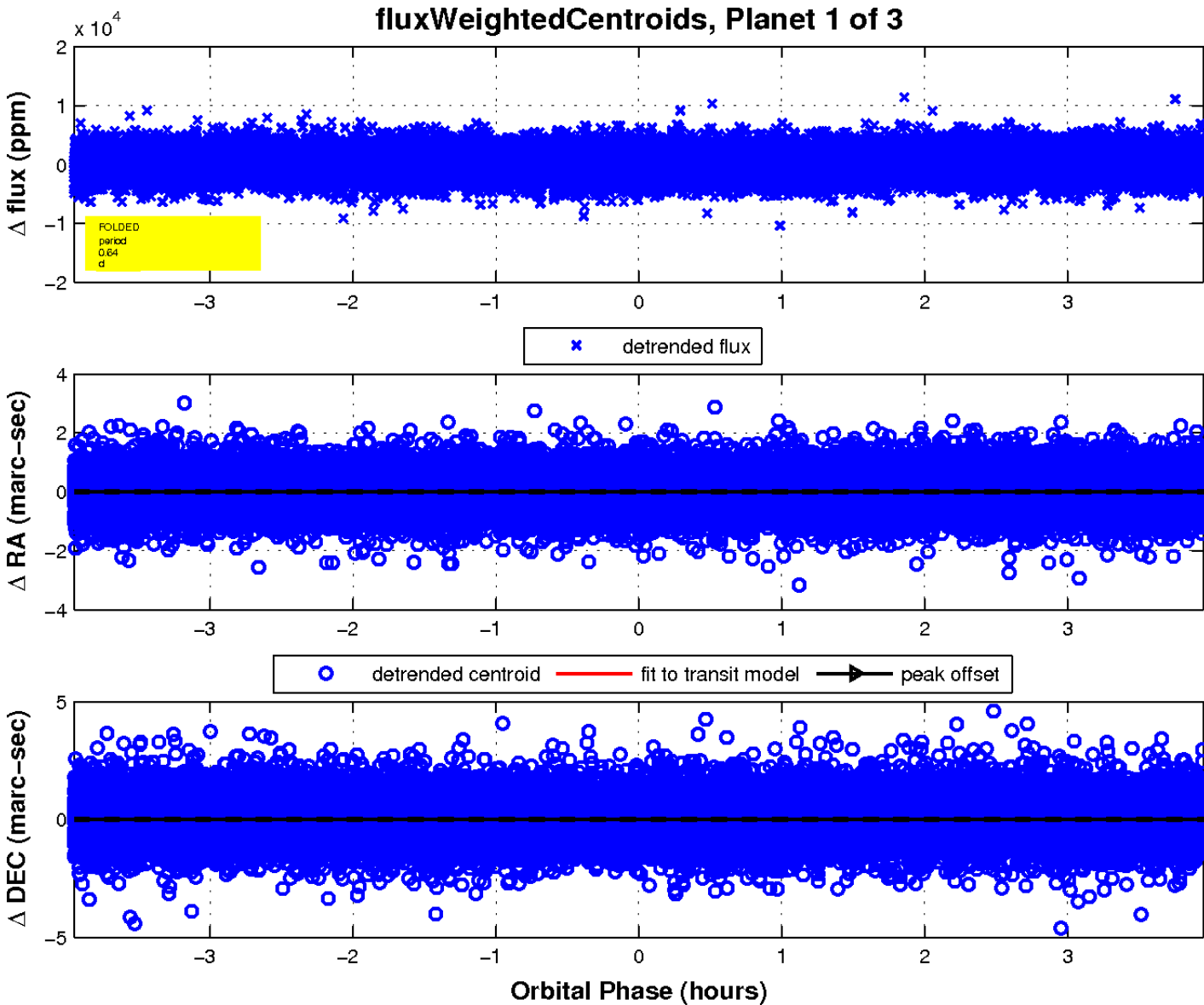
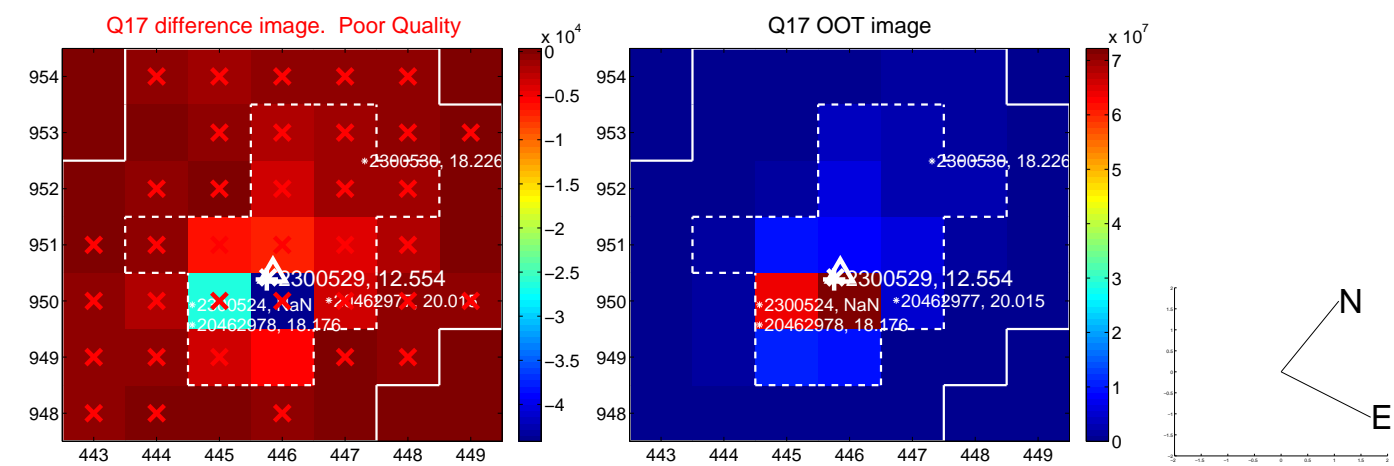
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

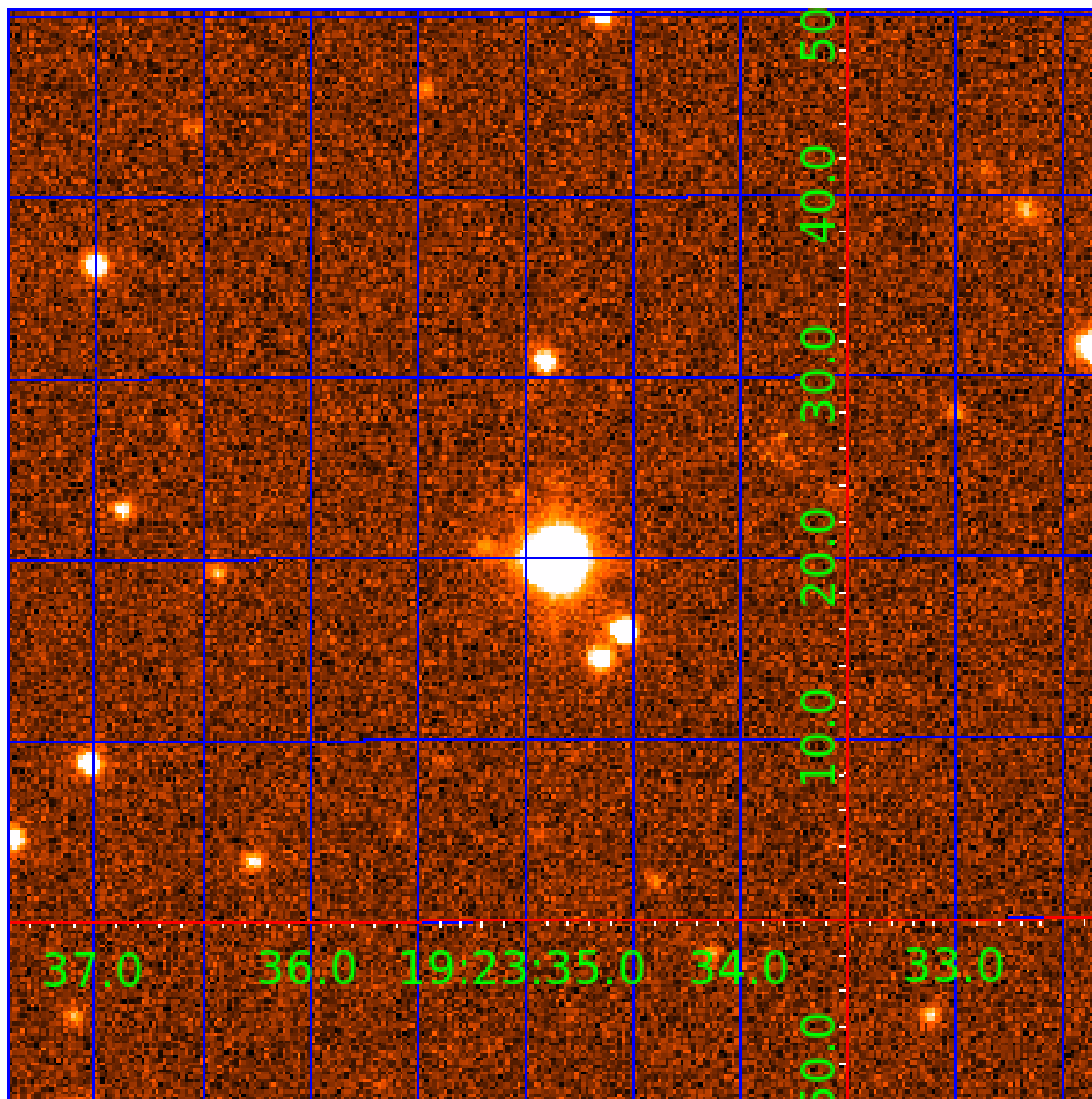


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002300529

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R_{\star} (R_{\odot}) | T_{\star} (K) | R_p (R_{\oplus}) | S_p (S_{\oplus}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 002300529-01 | OBS | No | 0.637988 | 131.690539 | 208.9 | 1.317 | 12.4 | 9.8 | 1.83 | 7247 | 2.71 | 29065.42 |
| 002300529-02 | OBS | No | 1.562671 | 132.042150 | 226.1 | 11.560 | 9.5 | 10.8 | 1.83 | 7247 | 3.75 | 8803.12 |
| 002300529-03 | OBS | No | 20.178561 | 148.449309 | 3567.4 | 1.112 | 10.7 | 11.6 | 1.83 | 7247 | 11.79 | 290.58 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 002300529-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT |
| 002300529-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 002300529-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

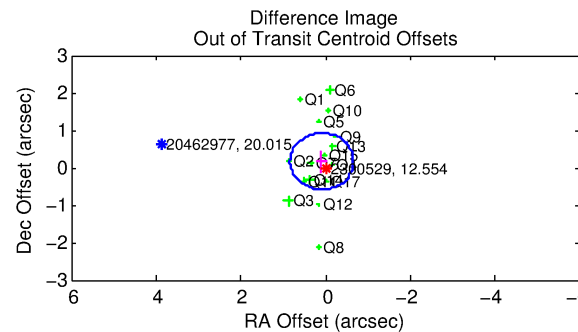
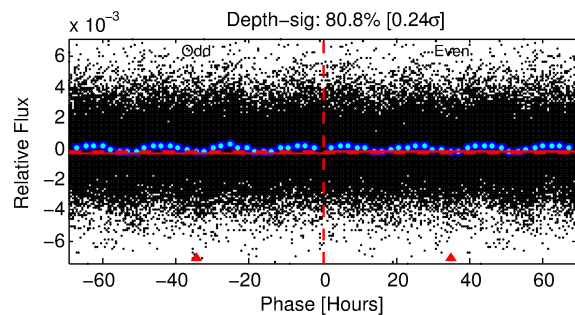
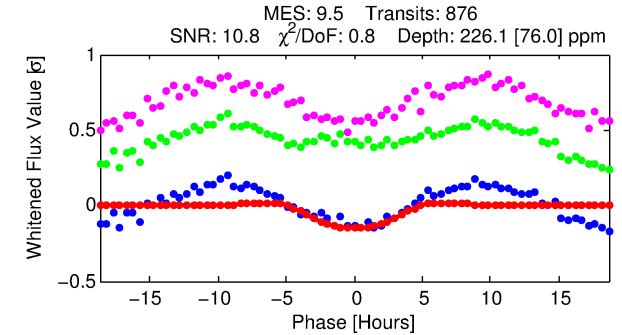
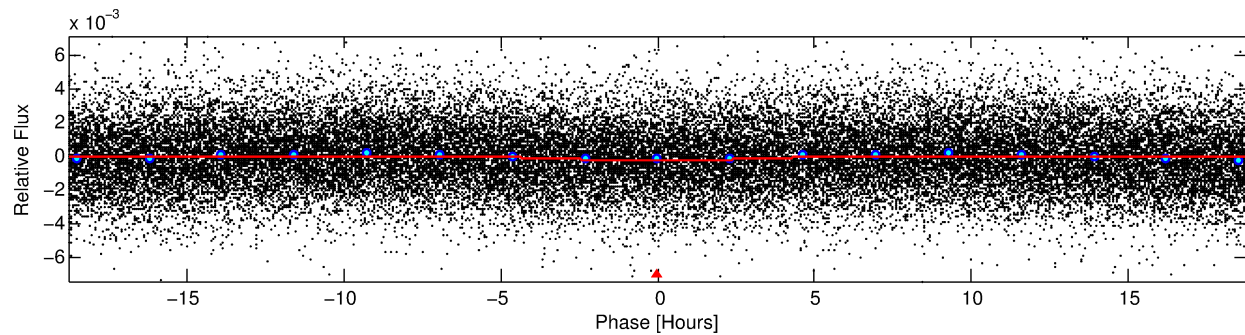
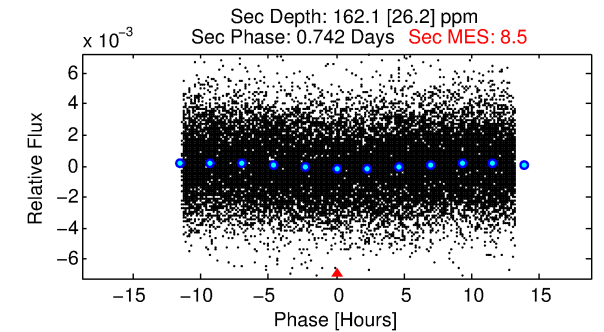
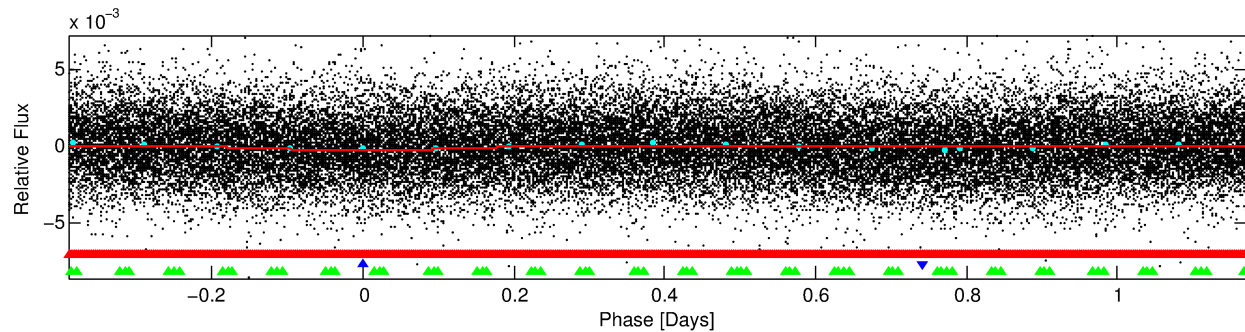
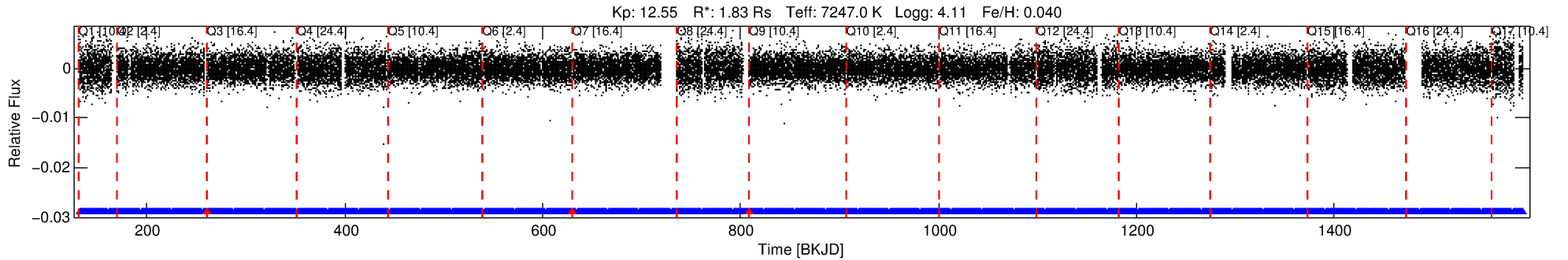
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002300529-02

No Significant Match Found

DV One-Page Summary

KIC: 2300529 Candidate: 2 of 3 Period: 1.563 d



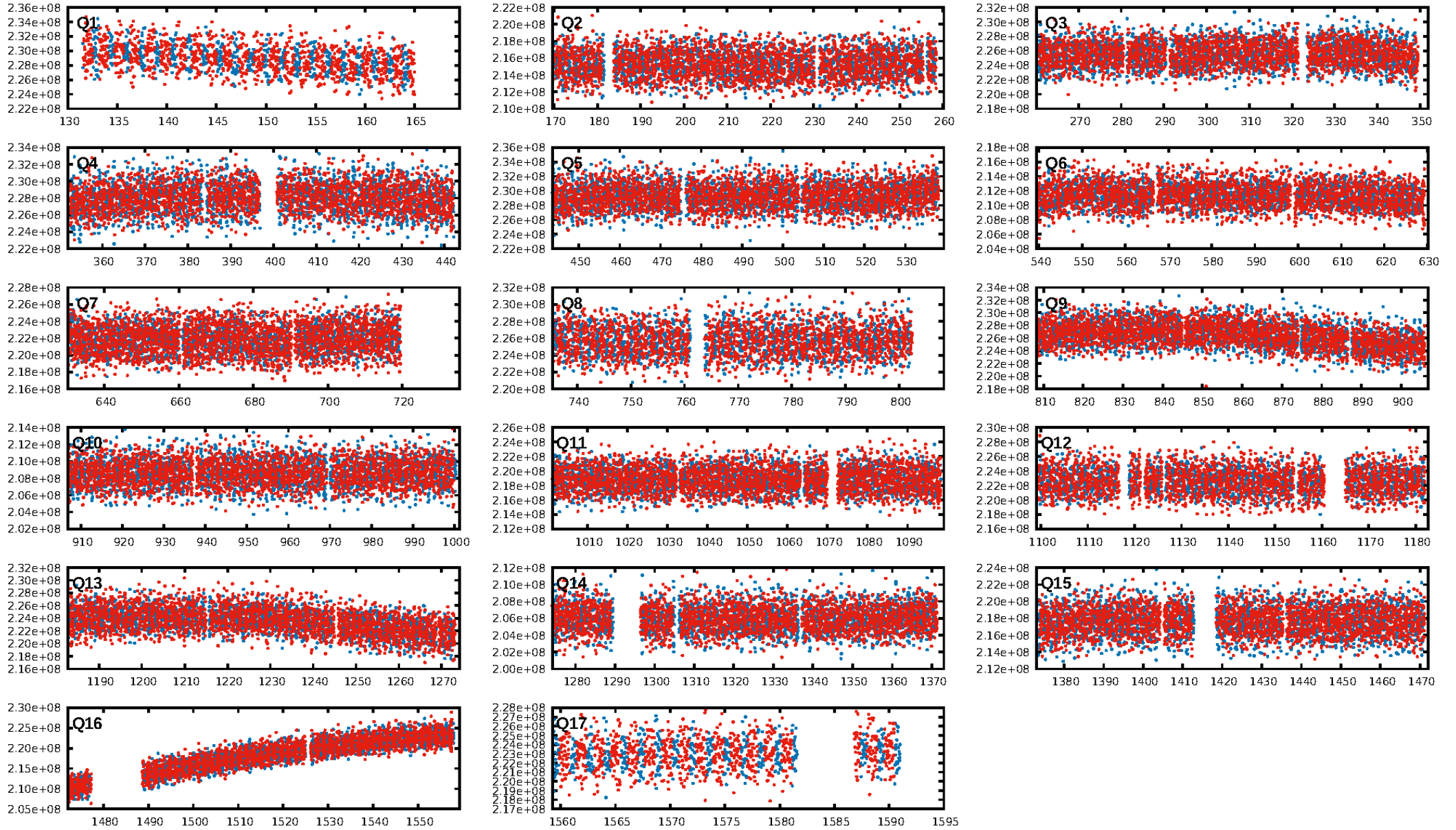
DV Fit Results:

Period = 1.56267 [0.00004] d
Epoch = 132.0422 [0.0202] BKJD
Rp/R* = 0.0187 [0.0060]
a/R* = 1.03 [0.01]
b = 0.98 [0.02]
Seff = 8803.12 [3575.96]
Teq = 2470 [251] K
Rp = 3.75 [1.66] Re
a = 0.0307 [0.0077] AU
Ag = 6.00 [4.51] [1.11σ]
Teffp = 5977 [1027] K [3.32σ]

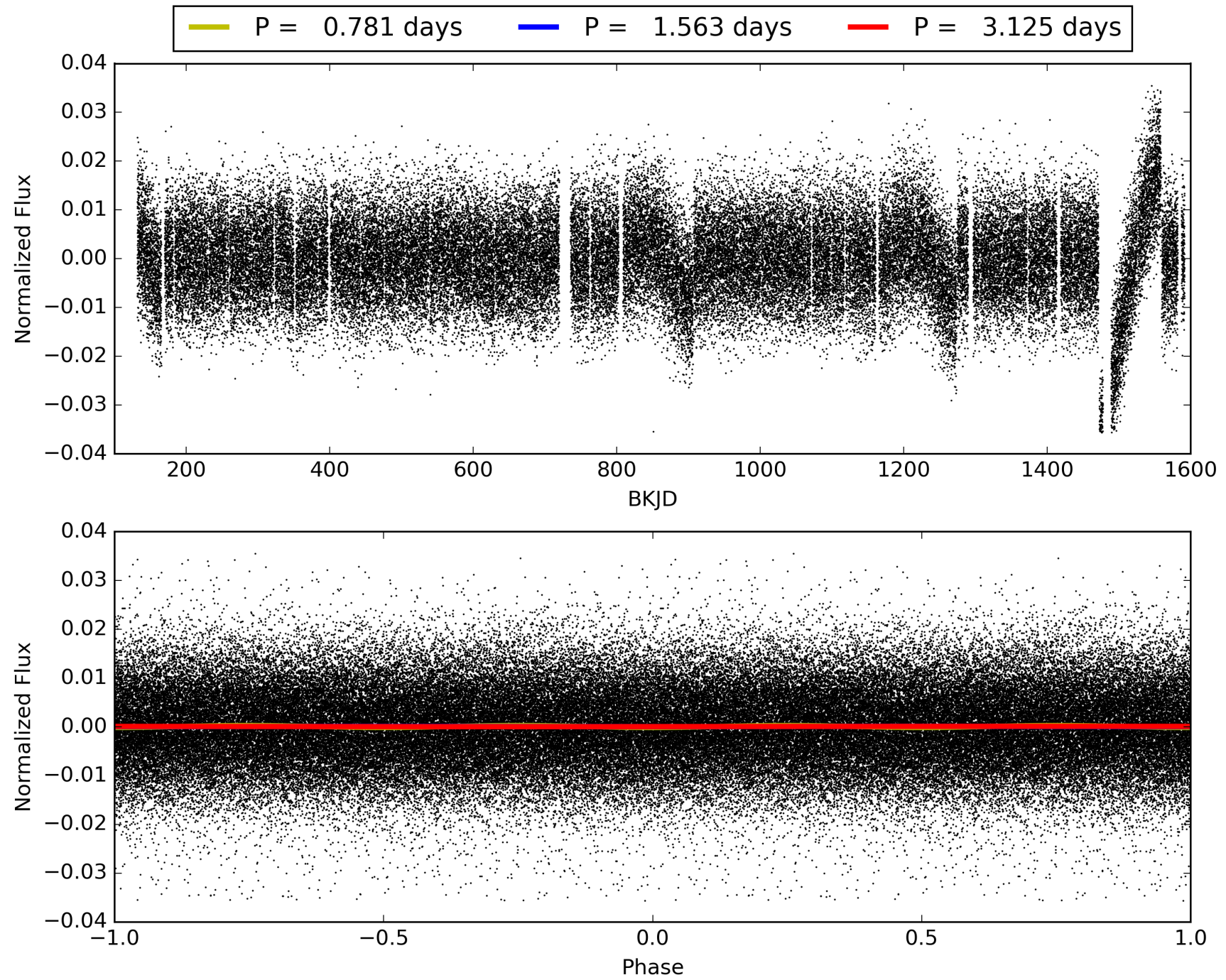
DV Diagnostic Results:

ShortPeriod-sig: 94.4% [1.91σ]
LongPeriod-sig: 100.0% [38.47σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.08e-91
RollingBand-fgt: 1.00 [834/837]
GhostDiagnostic-chr: 0.4368
Centroid-sig: 0.0%
Centroid-so: 0.196 arcsec [1.94σ]
OotOffset-rm: 0.192 arcsec [0.77σ]
KicOffset-rm: 0.164 arcsec [0.83σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 002300529-02, PDC Light Curves

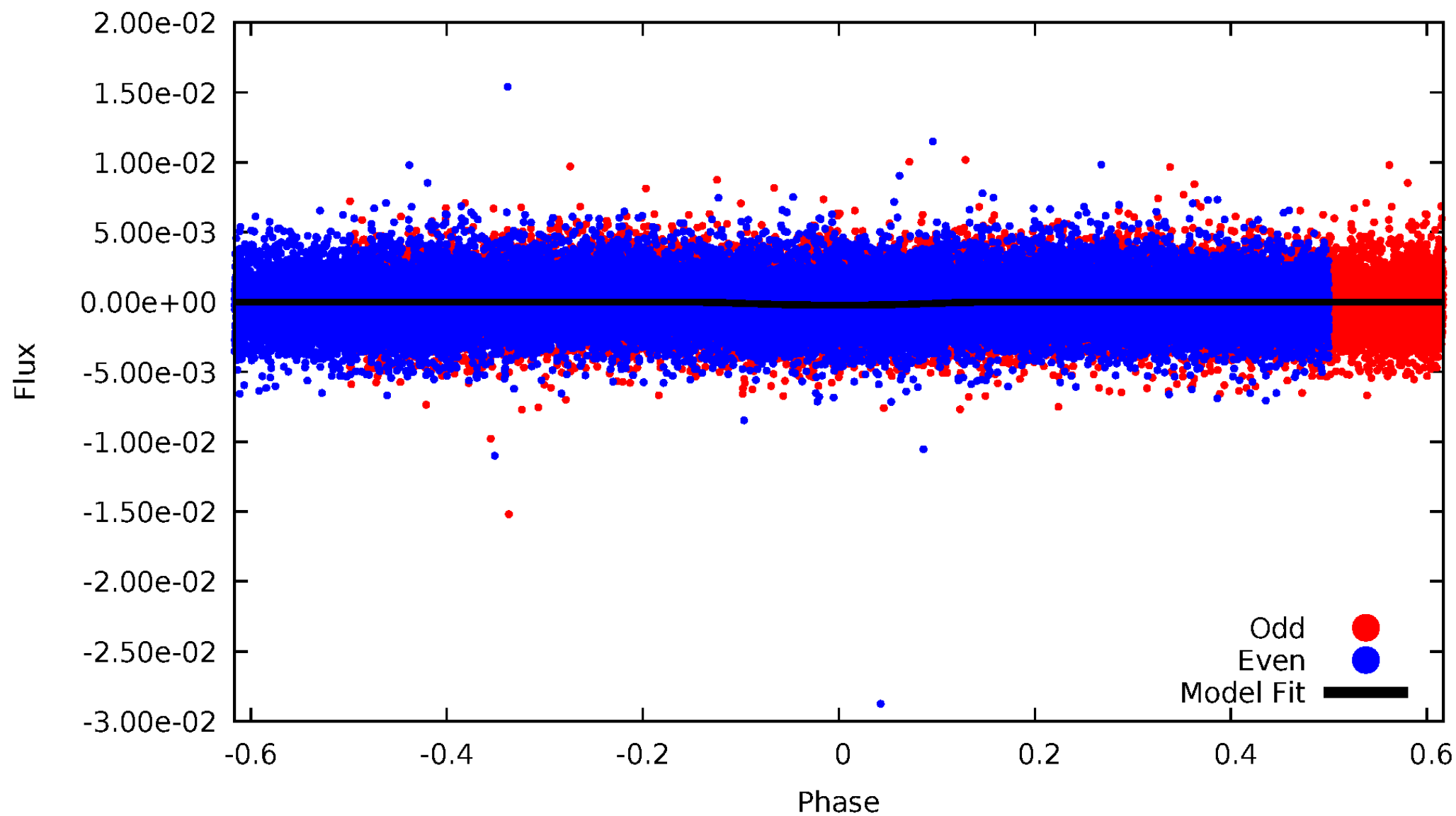


TCE 002300529-02



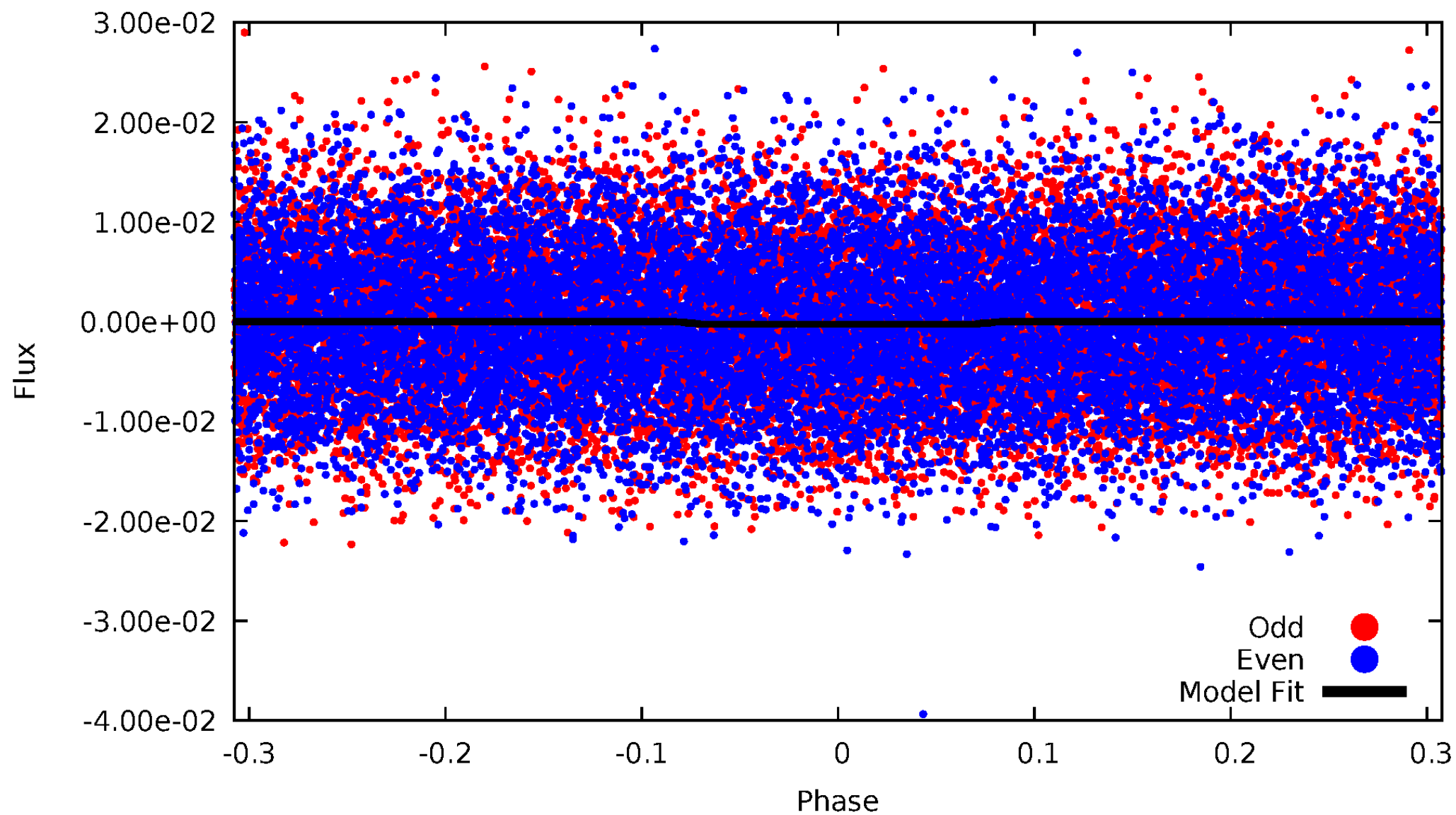
DV Odd/Even

TCE 002300529-02



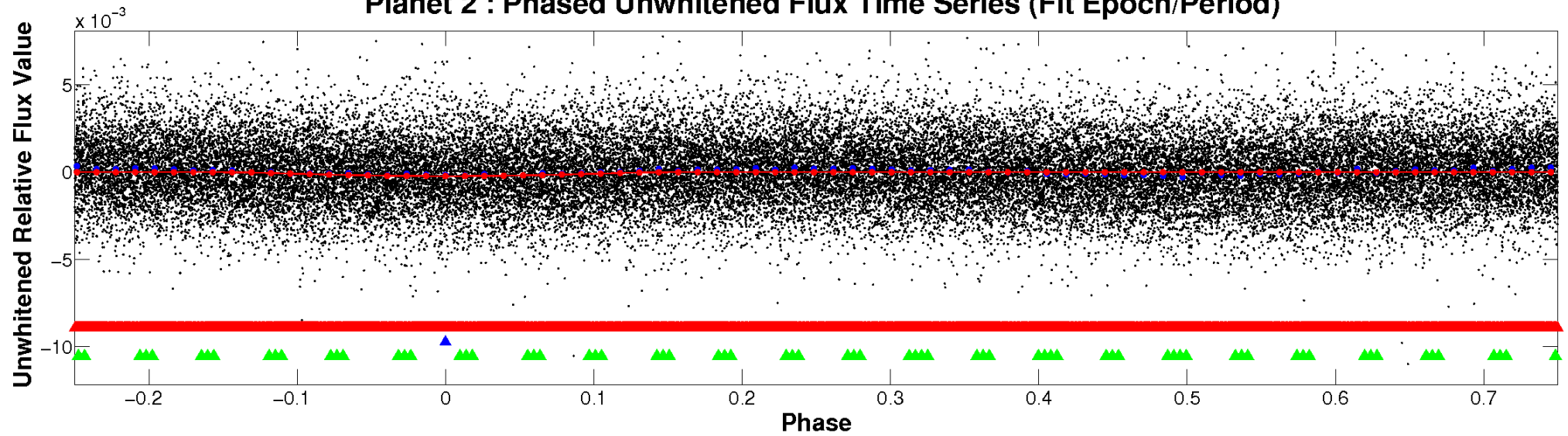
ALT Odd/Even

TCE 002300529-02

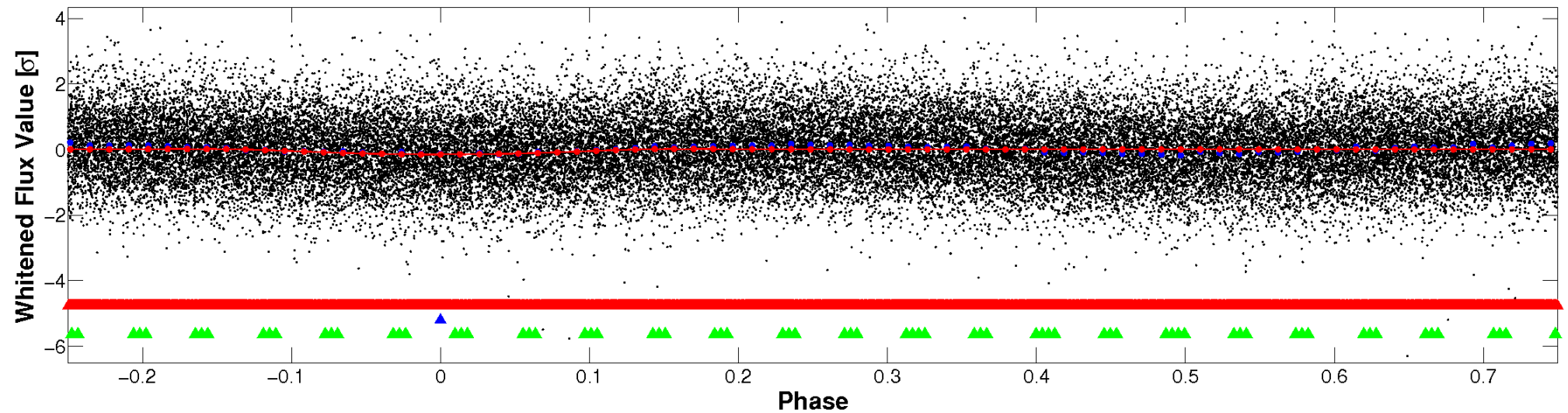


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

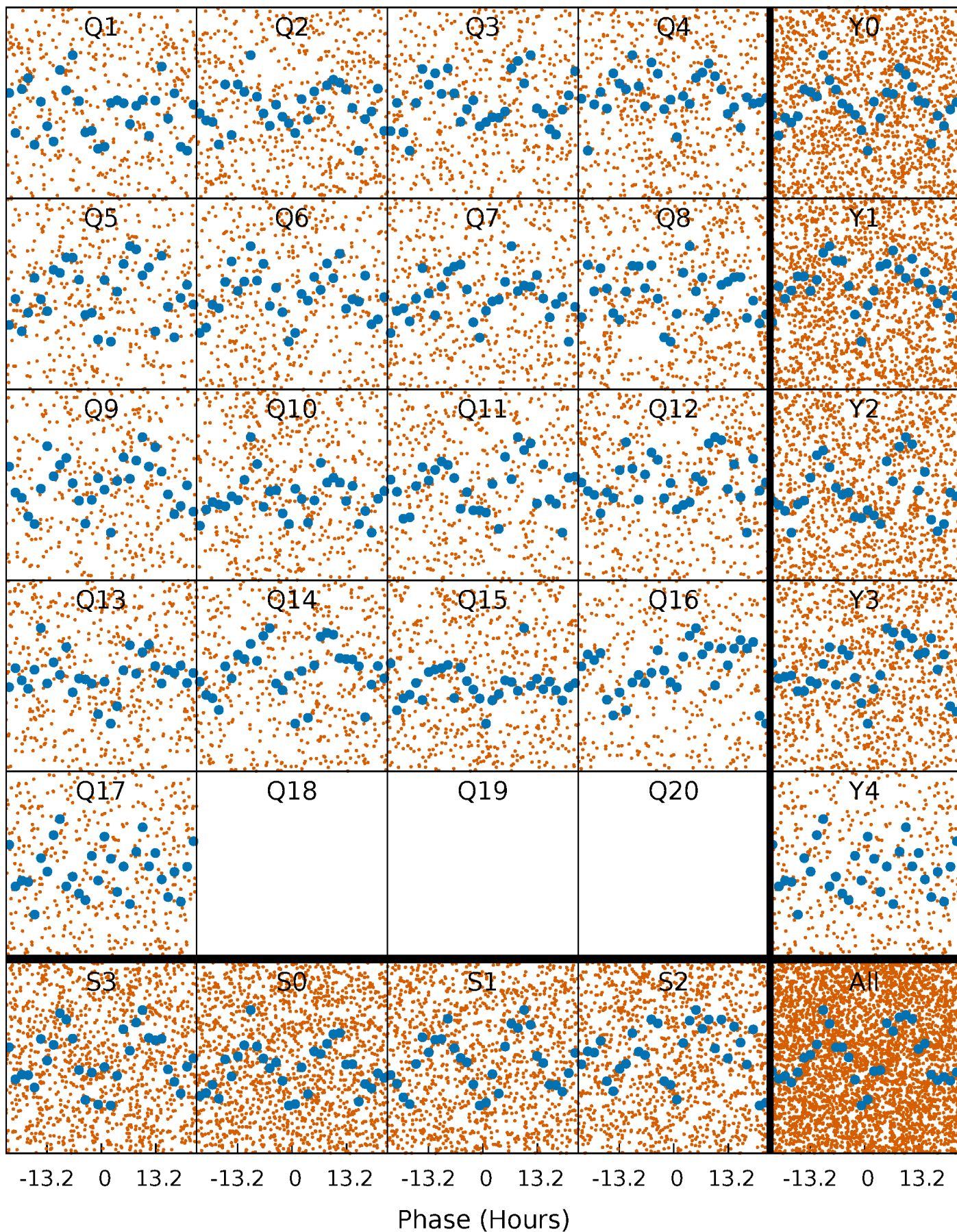


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



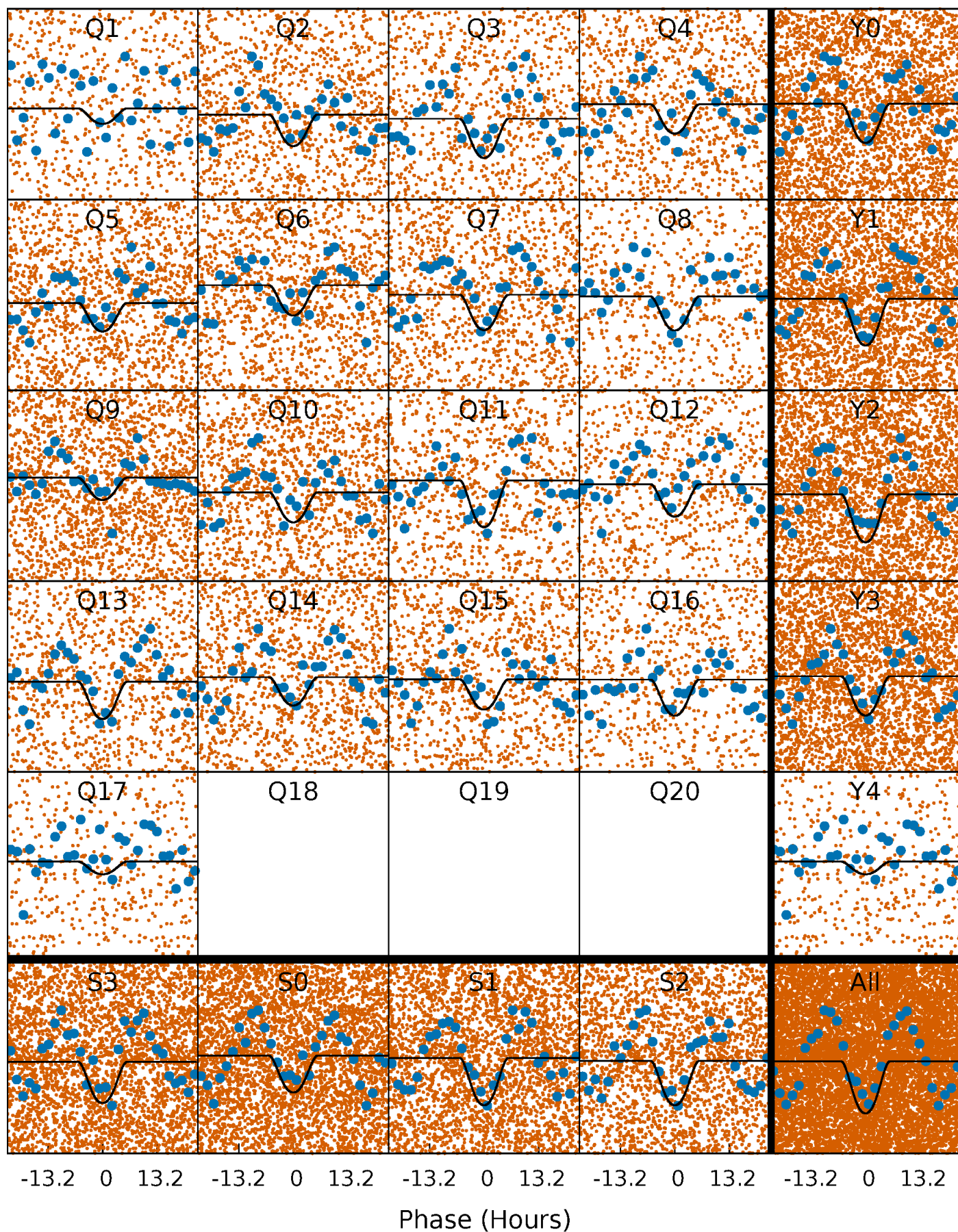
PDC Quarter-Phased Transit Curves

TCE 002300529-02 P= 1.562671 Days $T_0=132.042150$ (BKJD)



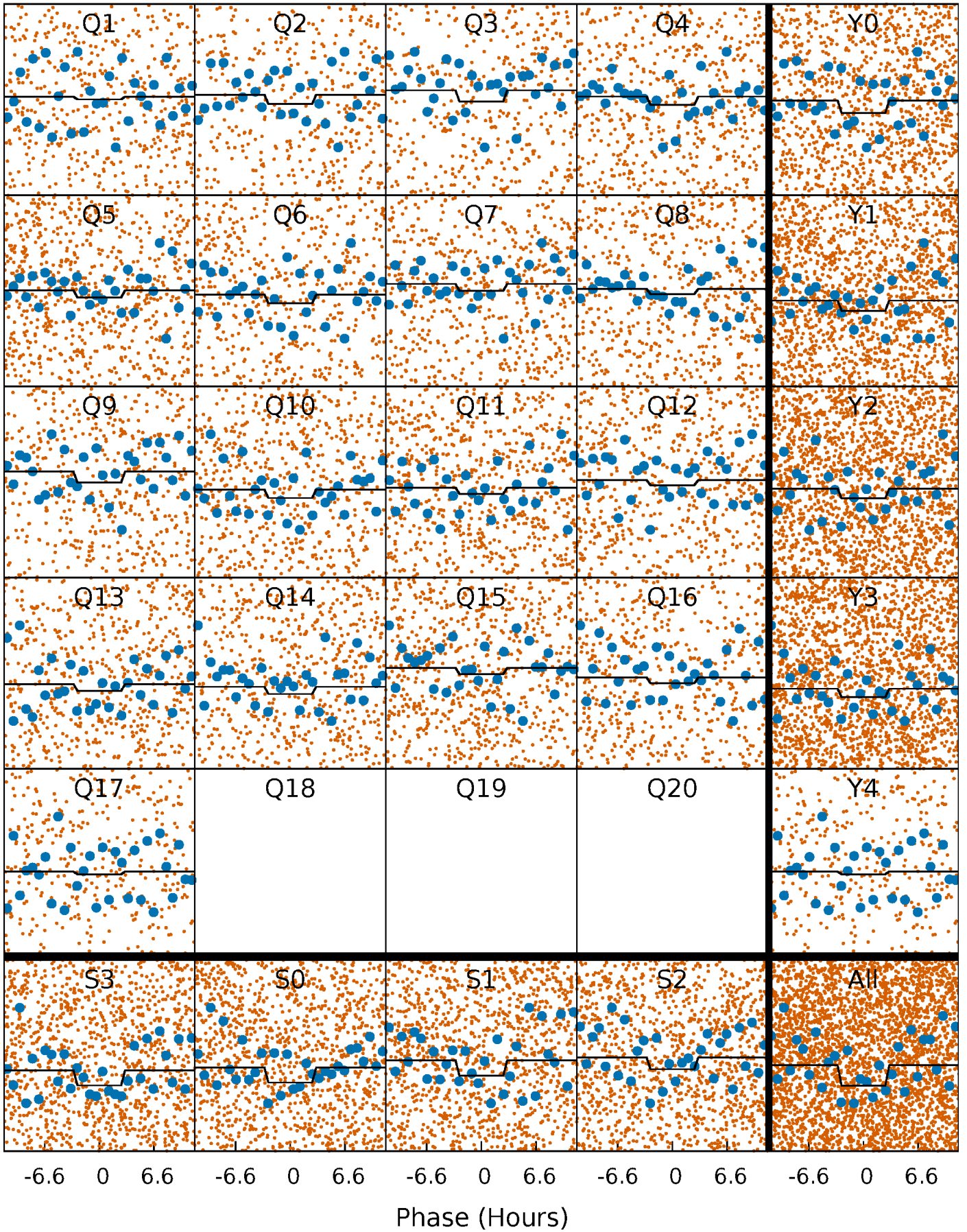
DV Quarter-Phased Transit Curves

TCE 002300529-02 P= 1.562671 Days $T_0=132.042150$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

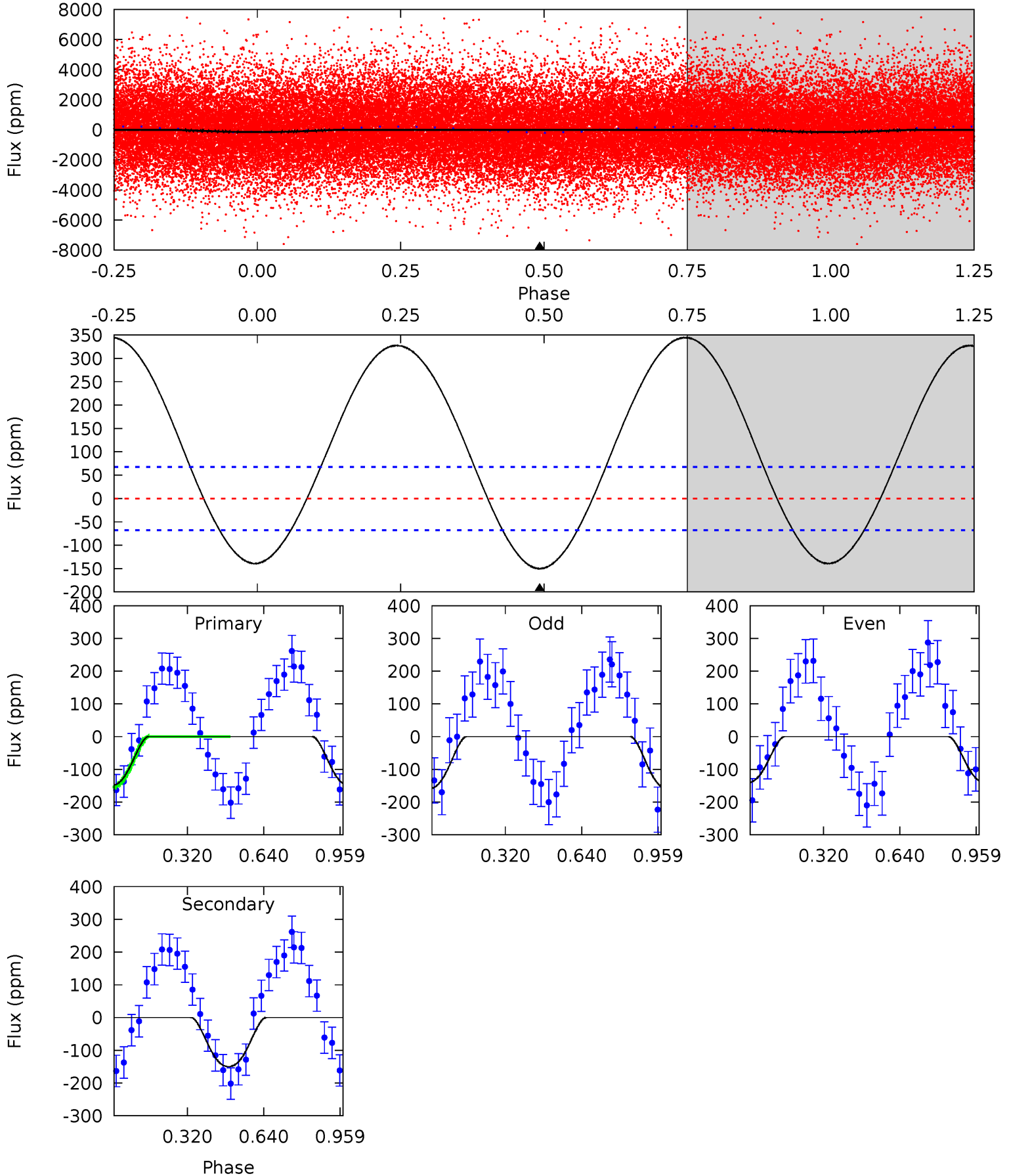
TCE 002300529-02 $P = 1.562714$ Days $T_0 = 132.021496$ (BKJD)



DV Model-Shift Uniqueness Test

002300529-02, P = 1.562671 Days, E = 130.479479 Days

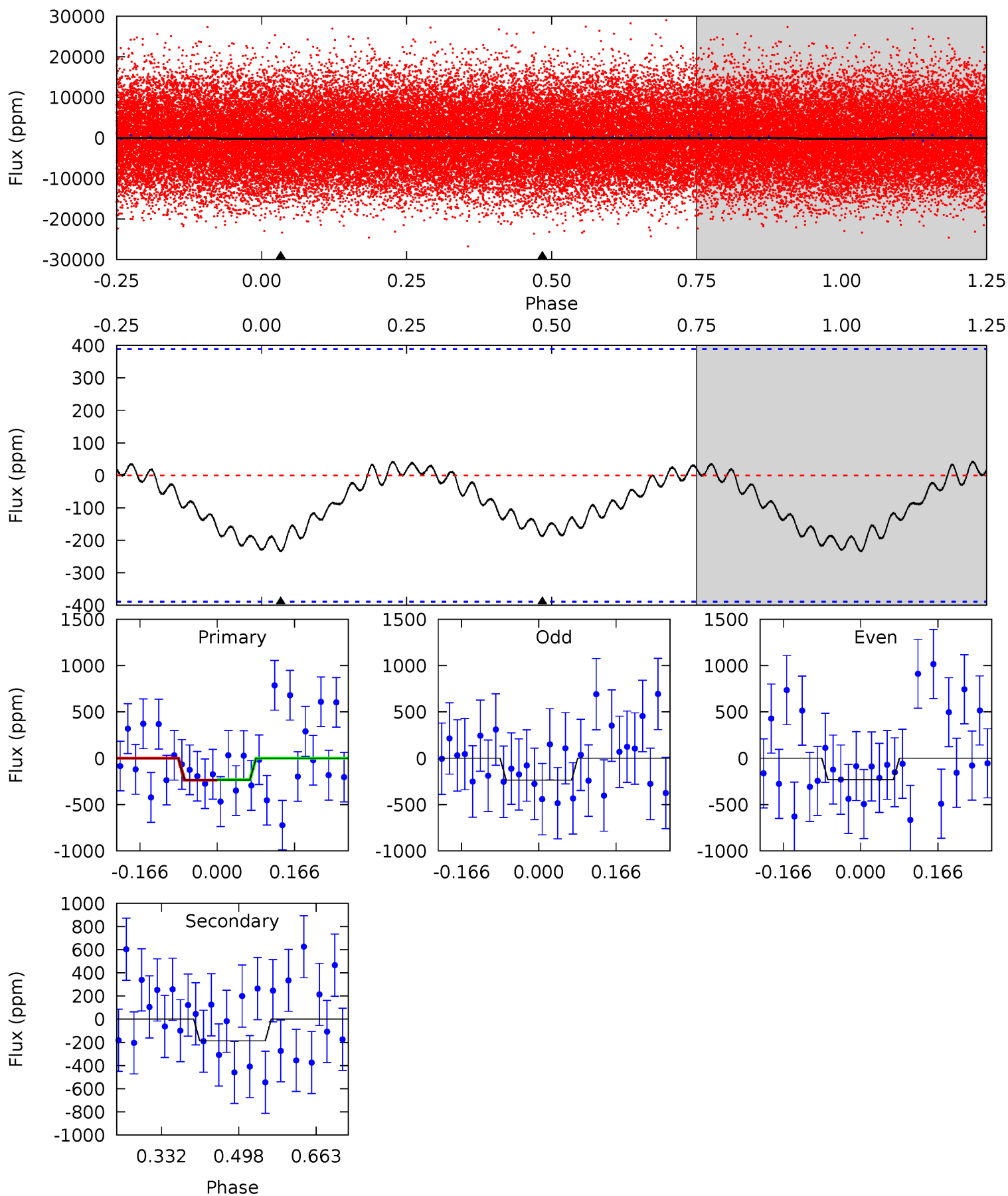
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.57 | 9.57 | 0 | 0 | 4.31 | 0.99 | 8.07 | 9.57 | 9.57 | 9.57 | 9.57 | 0.57 | 0.44 | 0.70 | 0.33 |



Alt Model-Shift Uniqueness Test

002300529-02, P = 1.562714 Days, E = 130.458782 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.68 | 2.14 | 0 | 0 | 4.46 | 1.39 | 0.35 | 2.68 | 2.68 | 2.14 | 2.14 | 0.03 | 0.60 | 0.15 | 0.03 |



Stellar Parameters For KIC 002300529

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7247^{+201}_{-345} | $4.111^{+0.128}_{-0.192}$ | $0.040^{+0.200}_{-0.350}$ | $1.834^{+0.563}_{-0.375}$ | $1.584^{+0.221}_{-0.265}$ | $0.361^{+0.279}_{-0.182}$ |
| | +3%/-5% | +3%/-5% | +500%/-875% | +31%/-20% | +14%/-17% | +77%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002300529-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -150 ± 16 | $3.84^{+1.36}_{-1.29}$ | 3463^{+285}_{-234} | 5638^{+1294}_{-746} | $5.119^{+6.678}_{-2.322}$ |
| Alt. | -187 ± 87 | $3.18^{+1.32}_{-1.21}$ | 3462^{+265}_{-228} | 6555^{+2518}_{-1334} | $8.900^{+17.233}_{-5.216}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

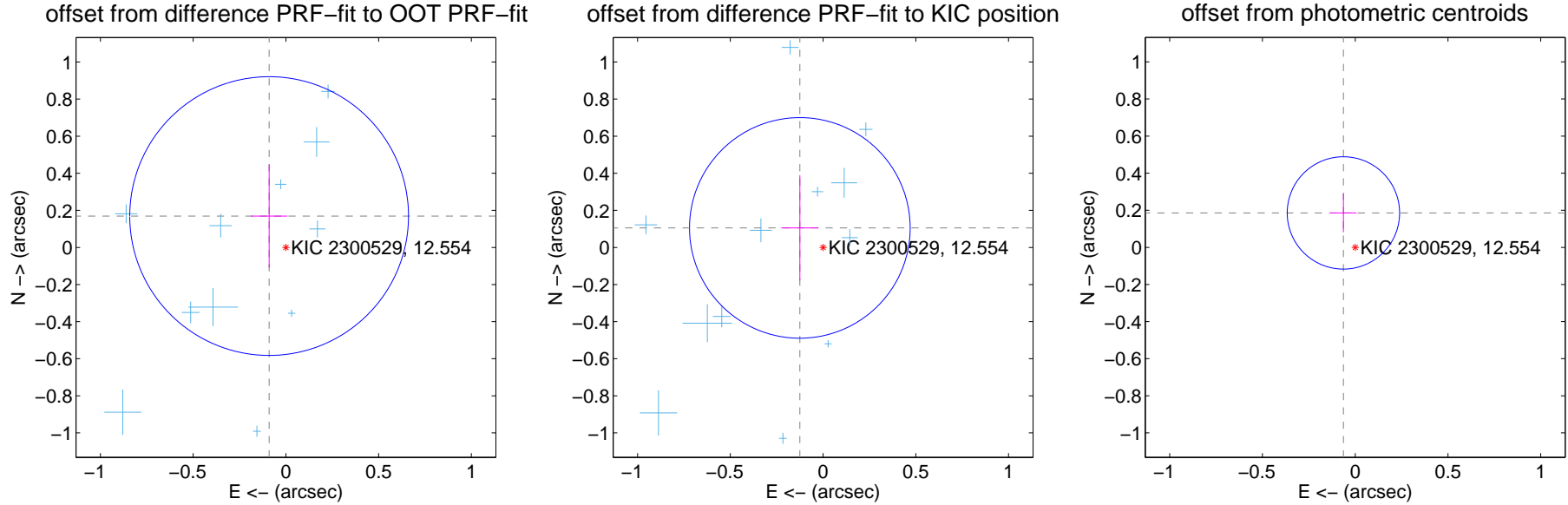
DV Centroid Data

Supplemental centroid analysis for 002300529-02. Kepler magnitude: 12.55. Transit SNR 10.81

There are 16 quarters with good PRF difference image offsets

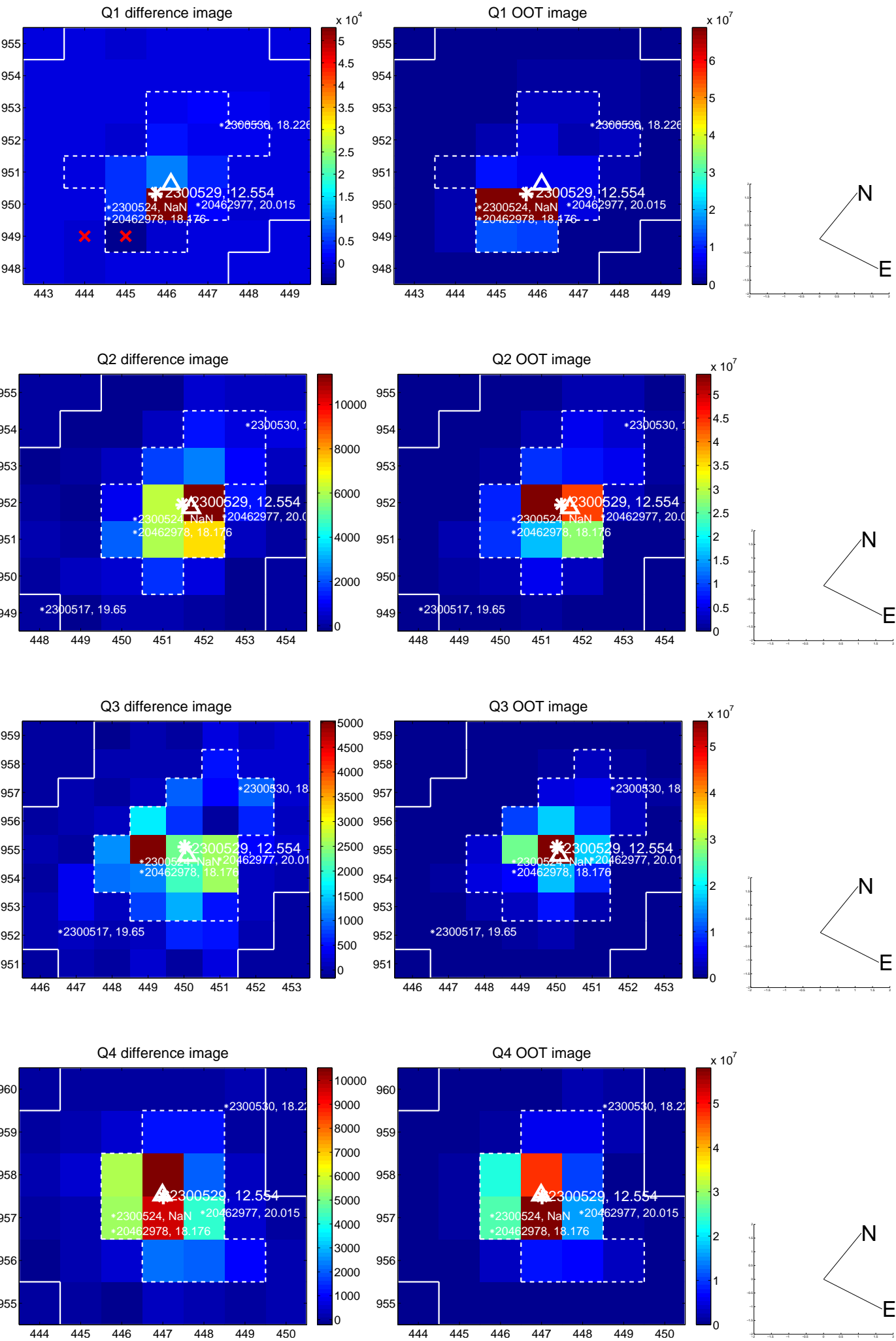
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.192 ± 0.251 | 0.77 | 0.090 ± 0.099 | 0.169 ± 0.279 |
| PRF-fit source offset from KIC position | 0.164 ± 0.198 | 0.83 | 0.125 ± 0.100 | 0.105 ± 0.284 |
| photometric centroid source offset | 0.20 ± 0.10 | 1.94 | 0.06 ± 0.07 | 0.19 ± 0.10 |

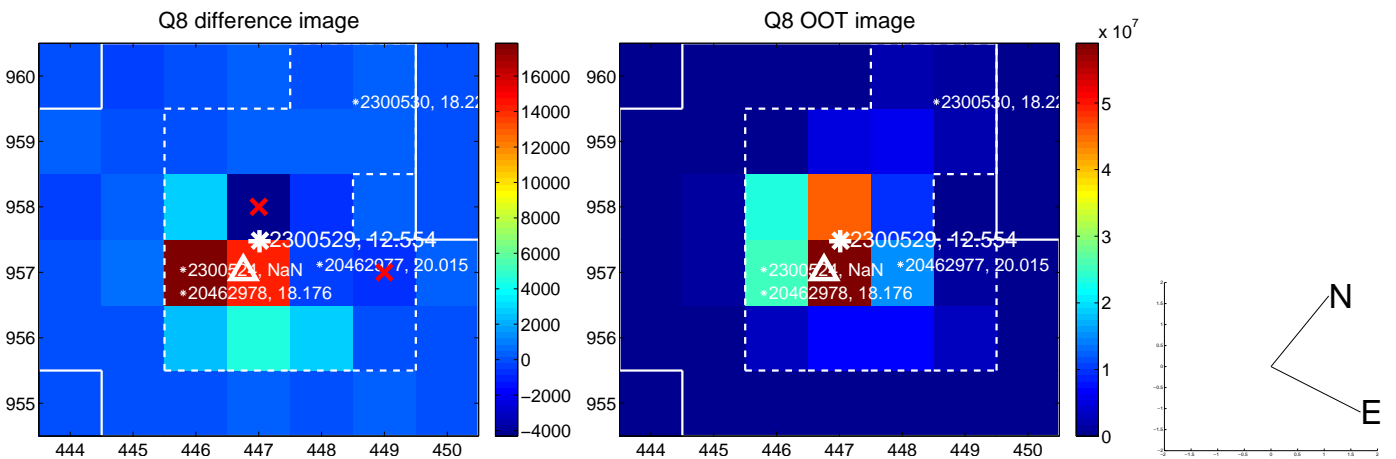
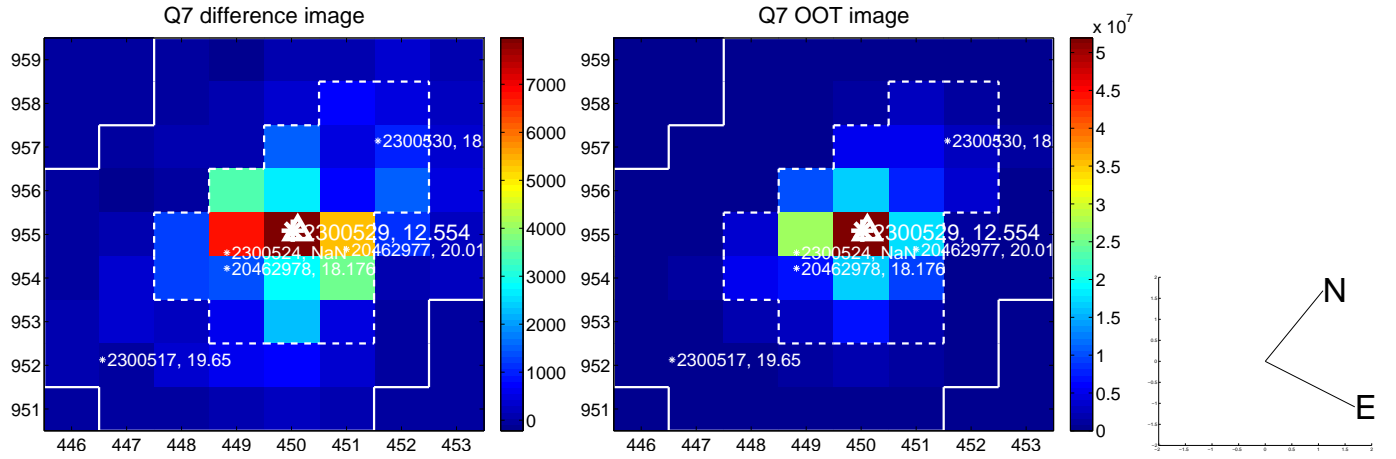
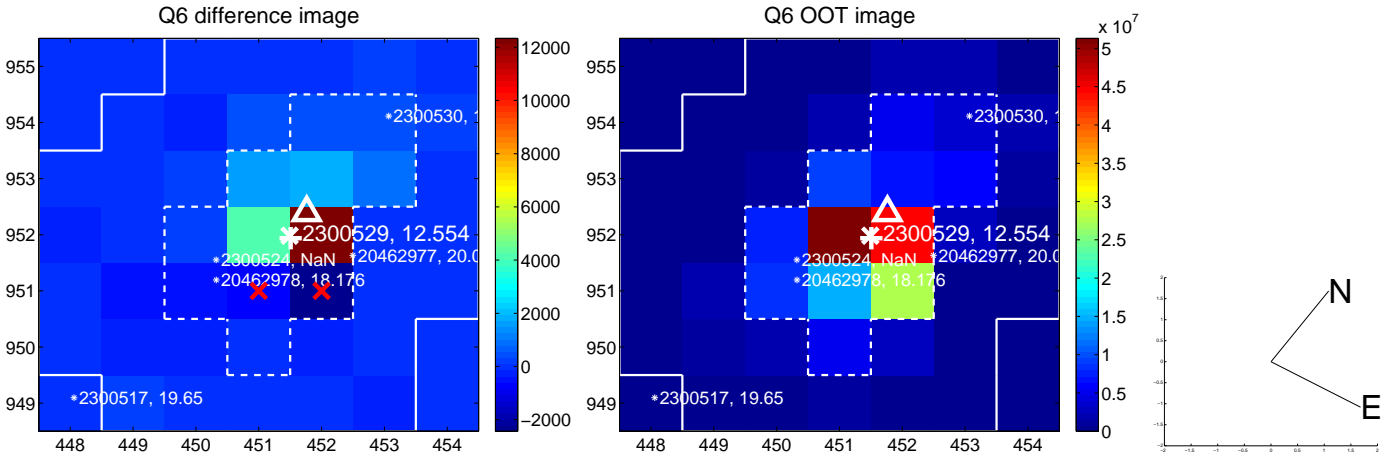
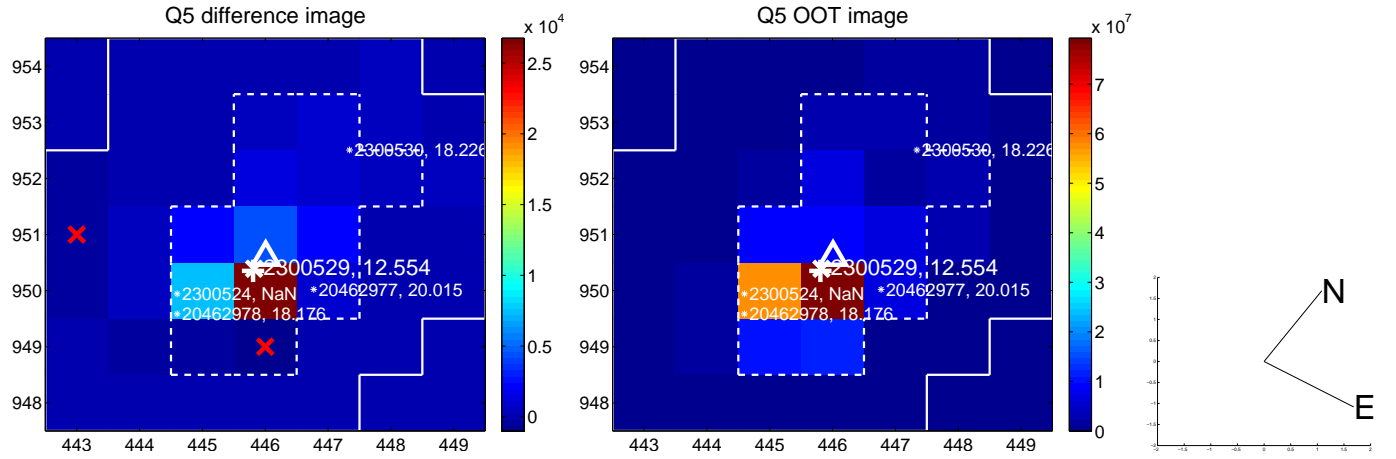


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

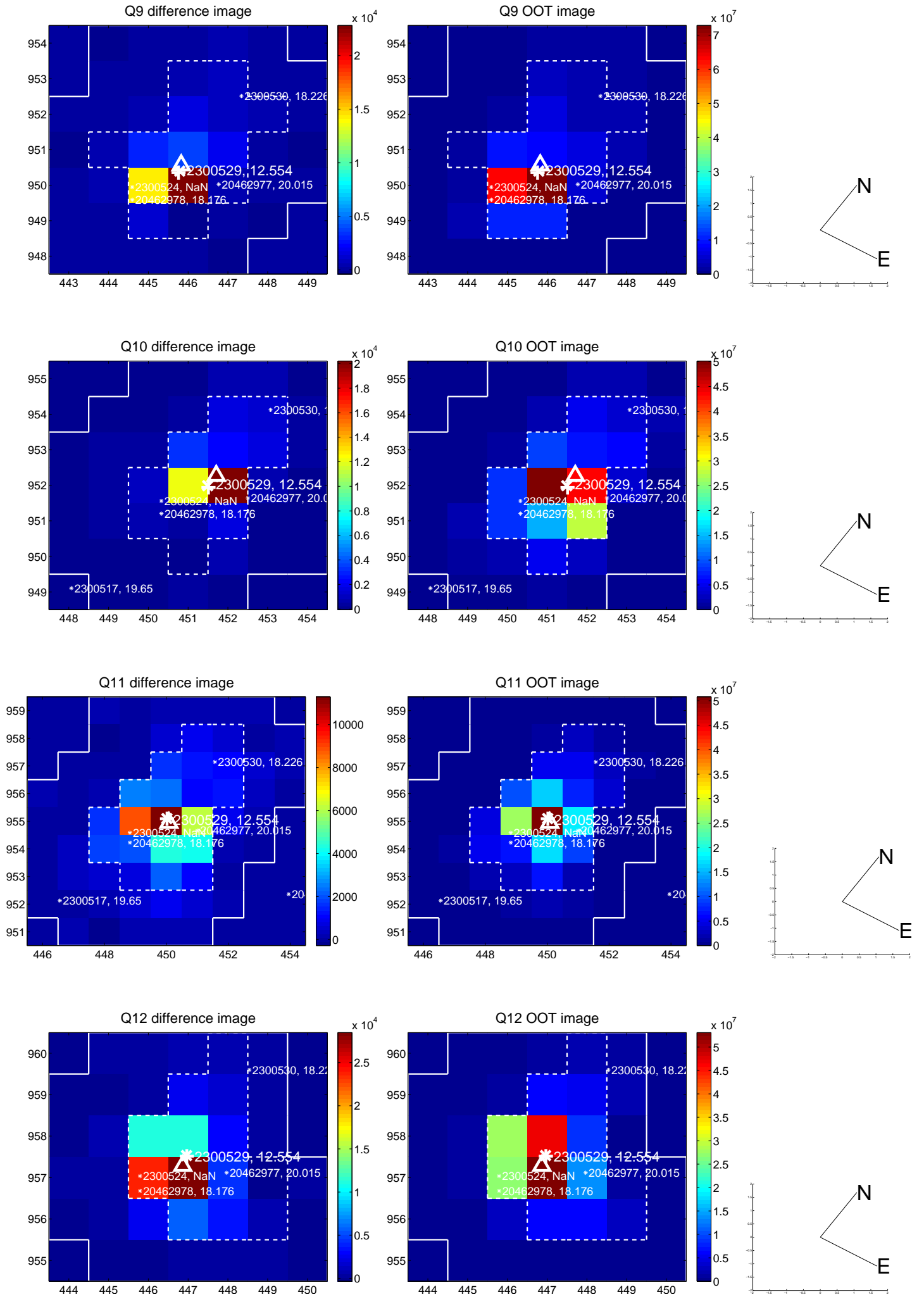
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



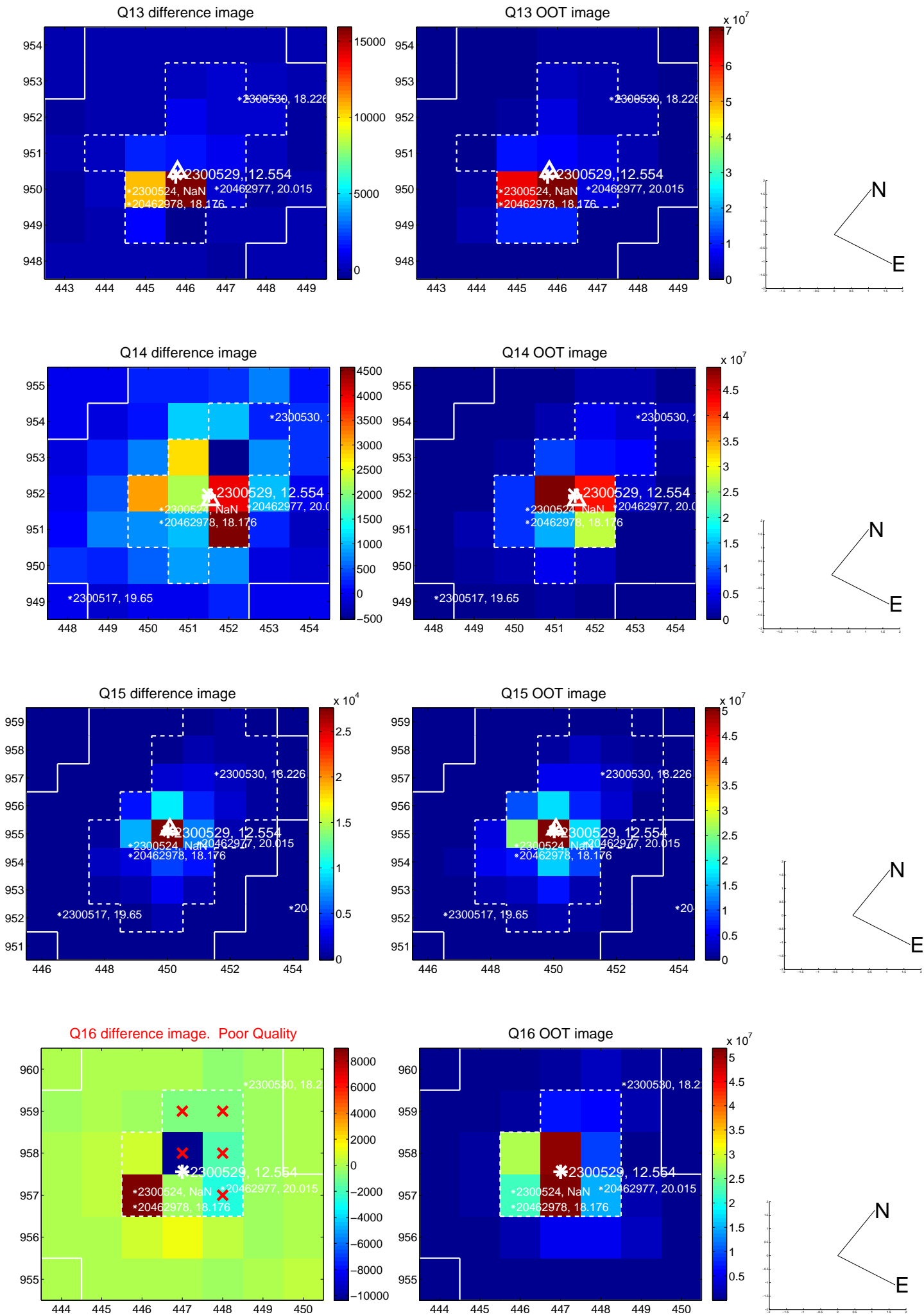
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



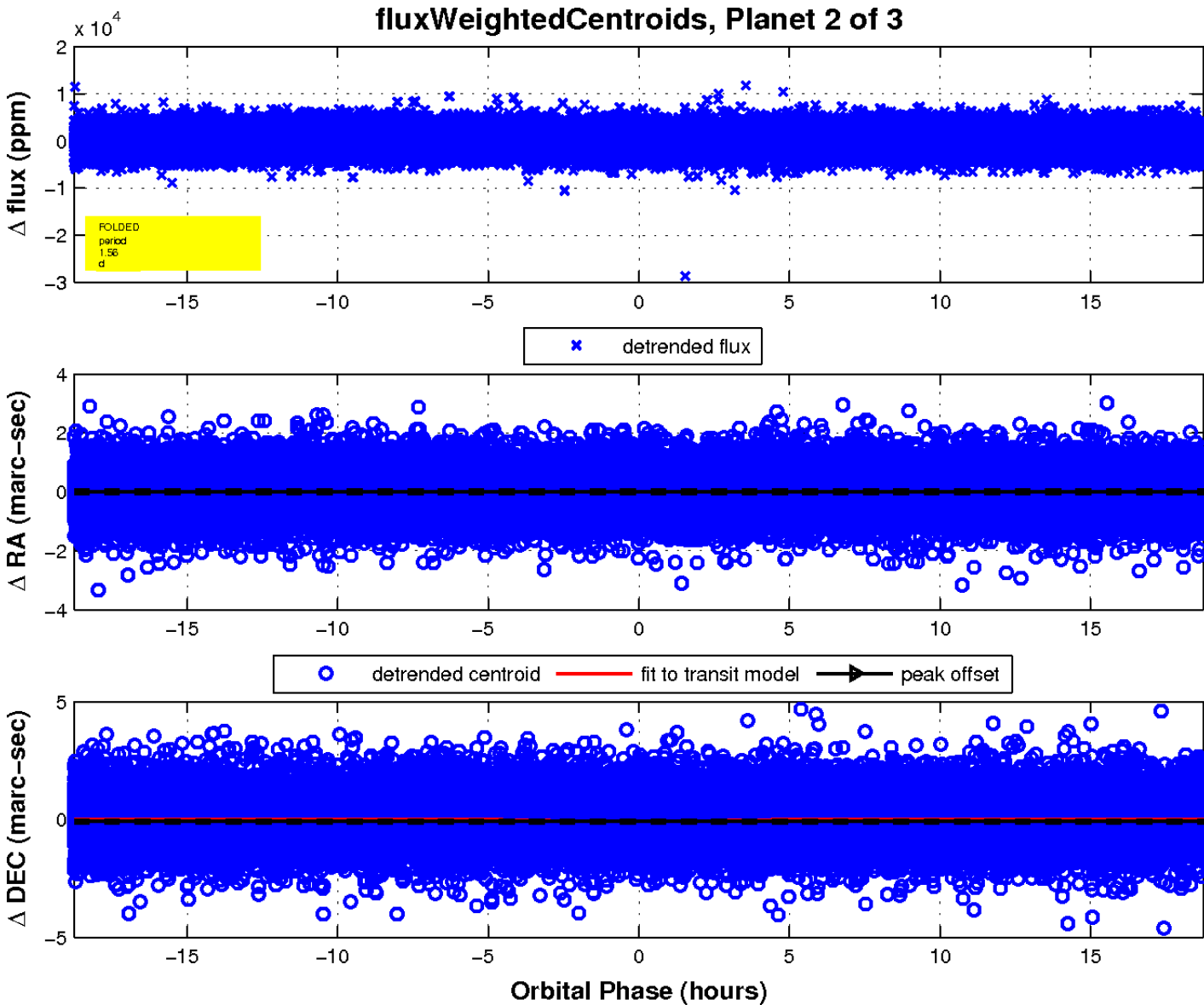
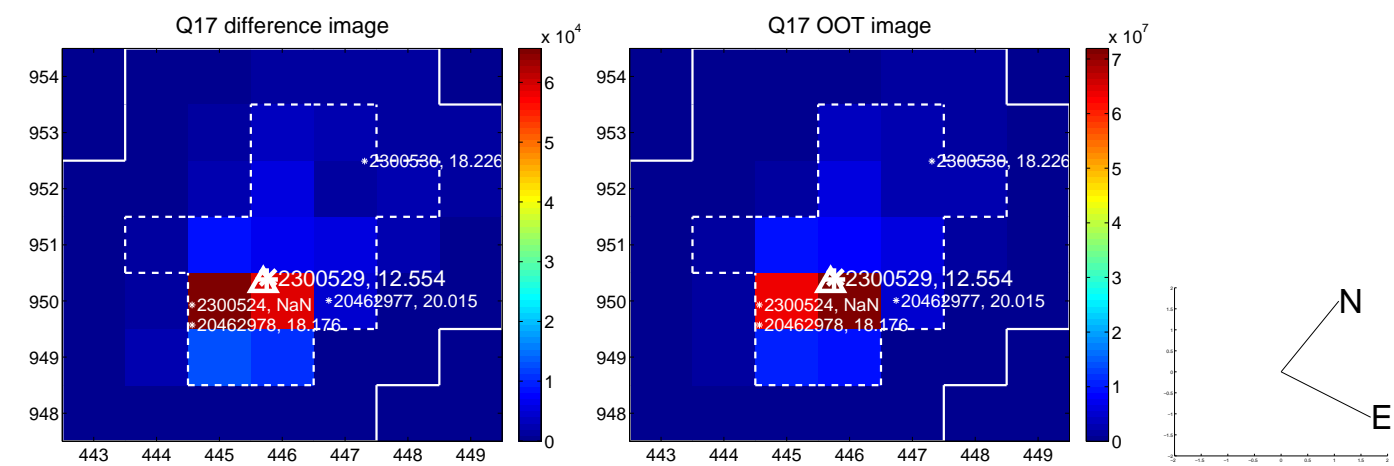
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

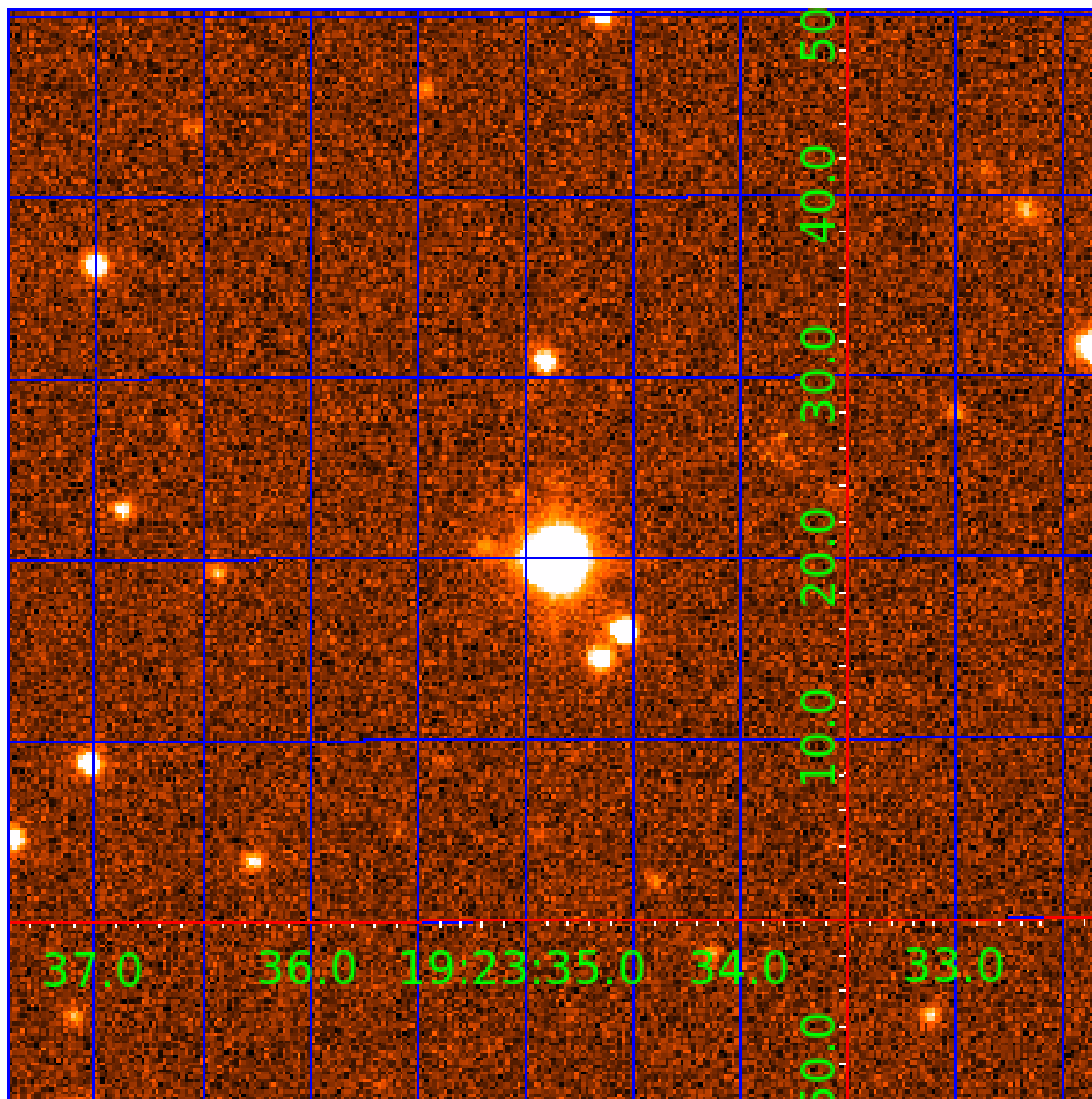


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002300529

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R_{\star} (R_{\odot}) | T_{\star} (K) | R_p (R_{\oplus}) | S_p (S_{\oplus}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 002300529-01 | OBS | No | 0.637988 | 131.690539 | 208.9 | 1.317 | 12.4 | 9.8 | 1.83 | 7247 | 2.71 | 29065.42 |
| 002300529-02 | OBS | No | 1.562671 | 132.042150 | 226.1 | 11.560 | 9.5 | 10.8 | 1.83 | 7247 | 3.75 | 8803.12 |
| 002300529-03 | OBS | No | 20.178561 | 148.449309 | 3567.4 | 1.112 | 10.7 | 11.6 | 1.83 | 7247 | 11.79 | 290.58 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 002300529-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT |
| 002300529-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 002300529-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

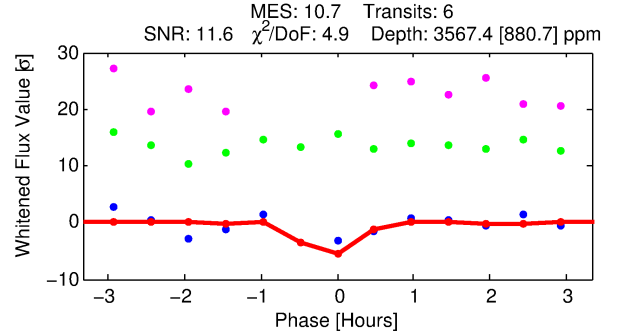
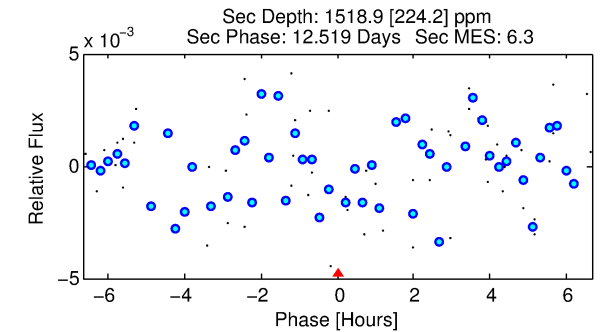
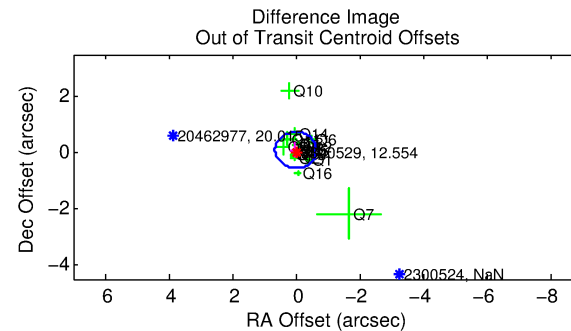
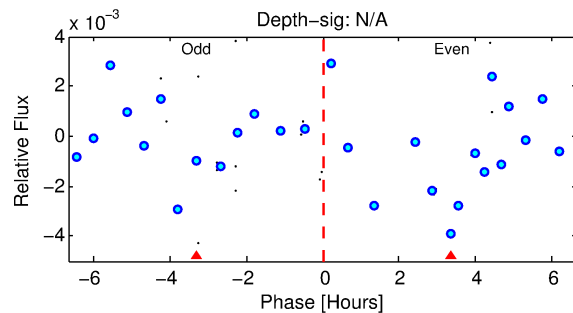
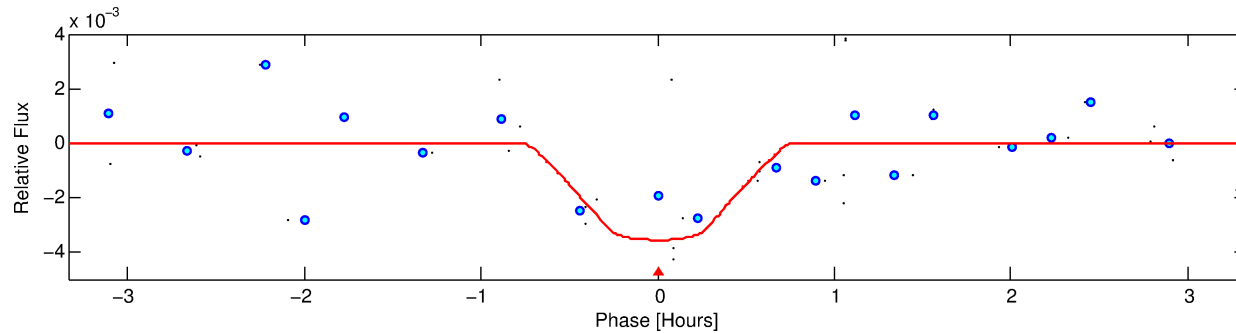
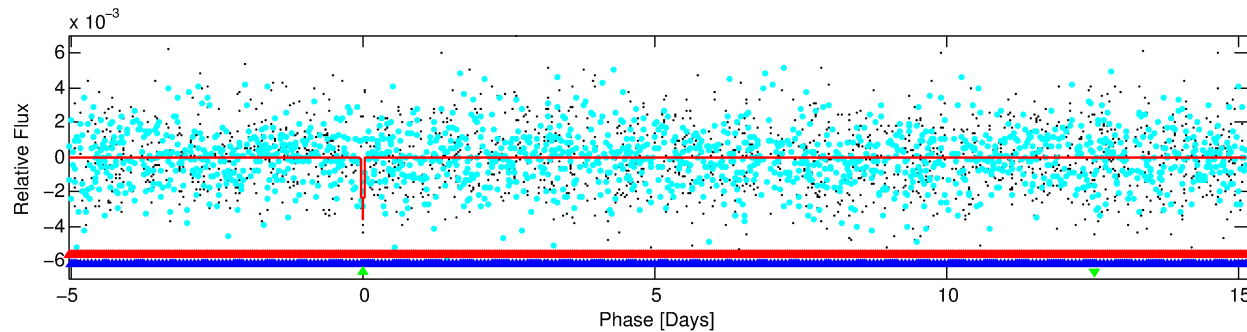
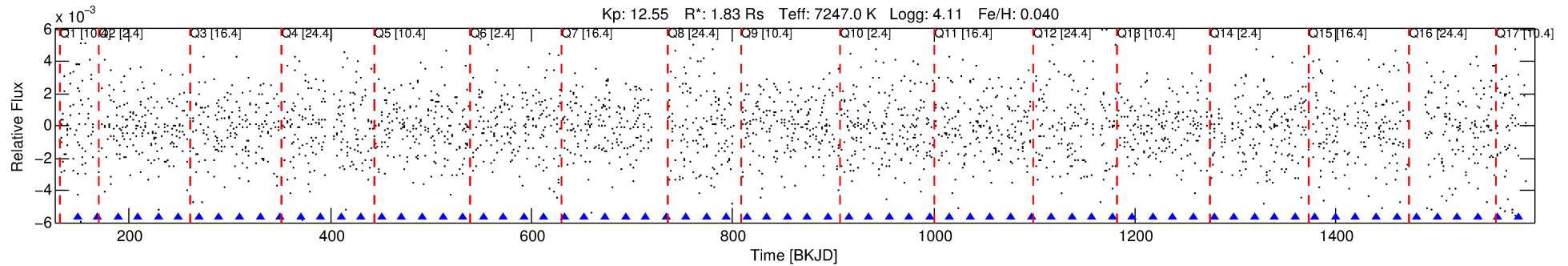
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002300529-03

No Significant Match Found

DV One-Page Summary

KIC: 2300529 Candidate: 3 of 3 Period: 20.179 d



DV Fit Results:

Period = 20.17856 [0.00015] d
Epoch = 148.4493 [0.0063] BKJD
Rp/R* = 0.0589 [0.3087]
a/R* = 111.55 [3512.92]
b = 0.69 [24.28]
Seff = 290.59 [118.04]
Teq = 1053 [107] K
Rp = 11.79 [61.88] Re
a = 0.1691 [0.0427] AU
Ag = 171.86 [1801.59] [0.09σ]
Teffp = 5894 [15439] K [0.31σ]

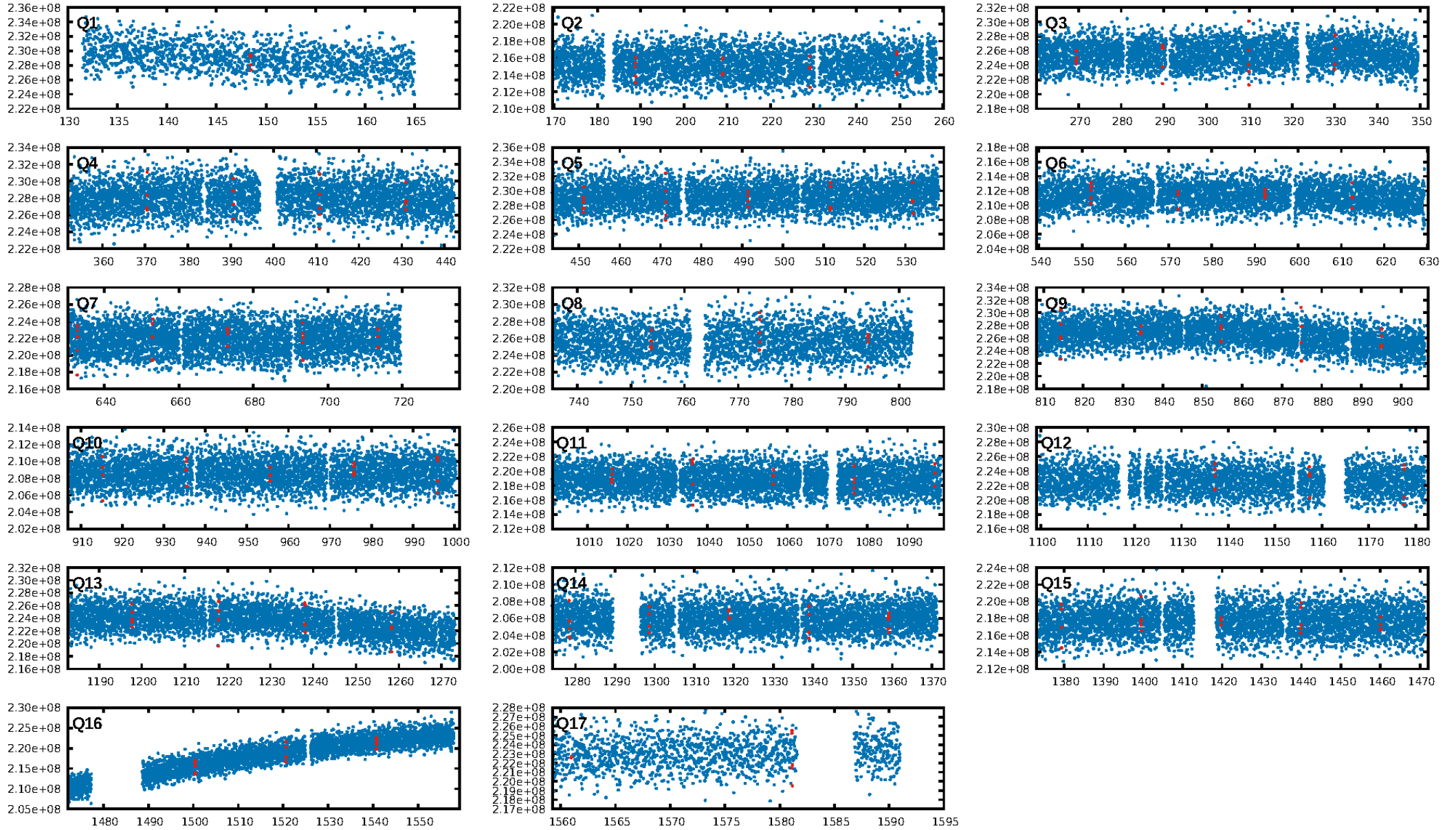
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.47σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 47.7%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: 2.27e-06
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.6316
Centroid-sig: 3.7%
Centroid-so: 0.160 arcsec [2.92σ]
OotOffset-rm: 0.089 arcsec [0.41σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.090 arcsec [0.39σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 0.24 [4/17]

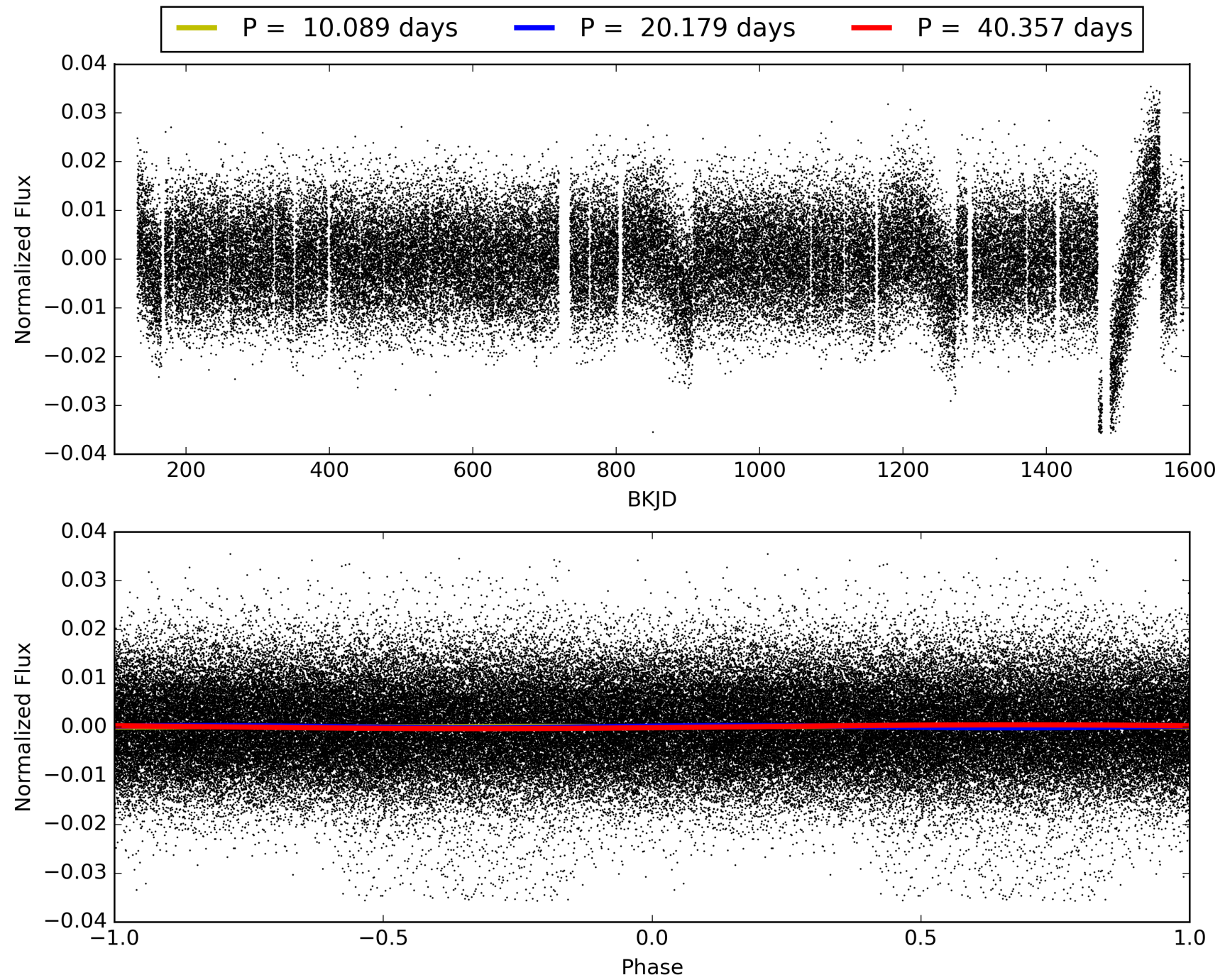
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:36:51 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002300529-03, PDC Light Curves

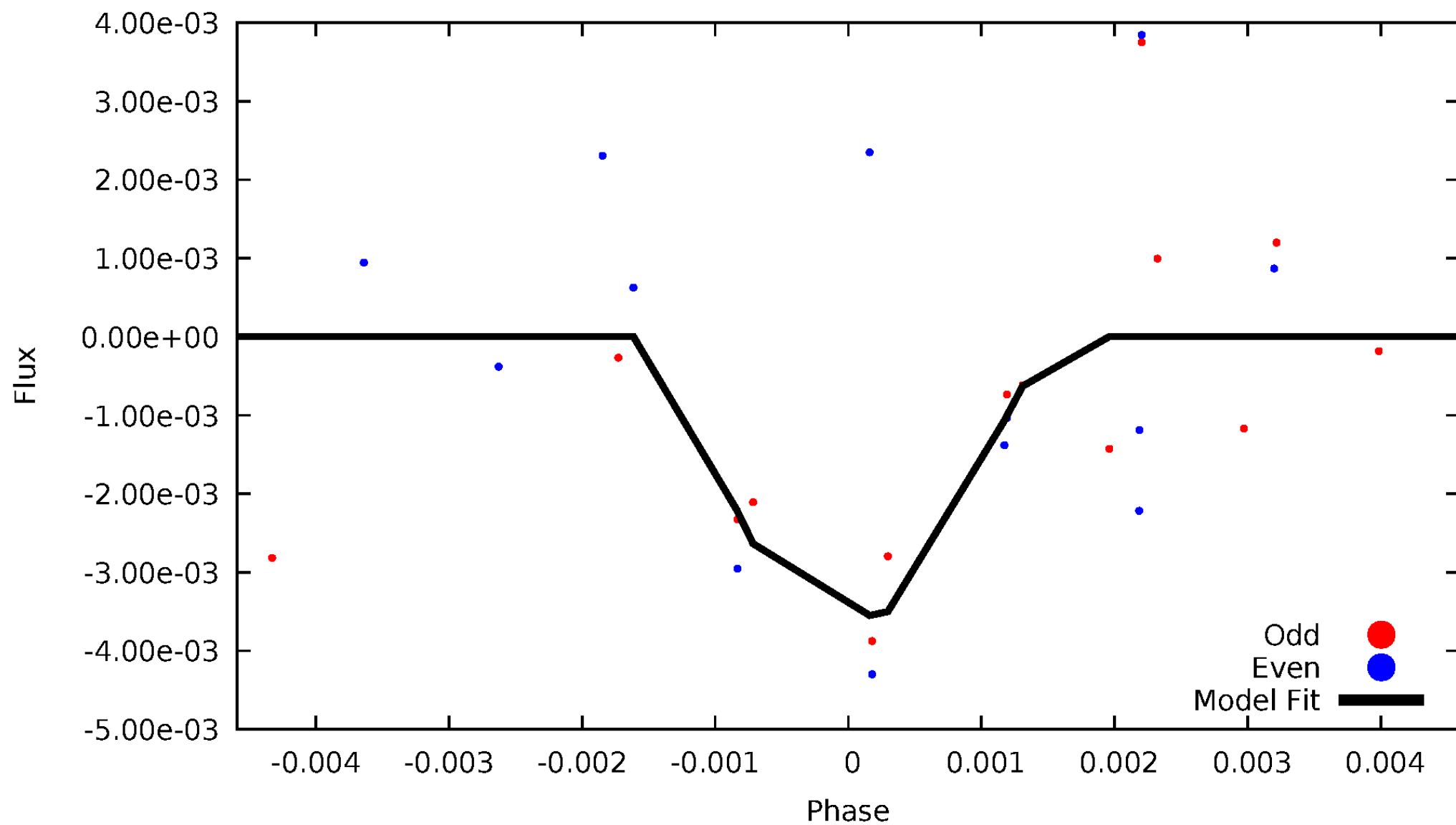


TCE 002300529-03



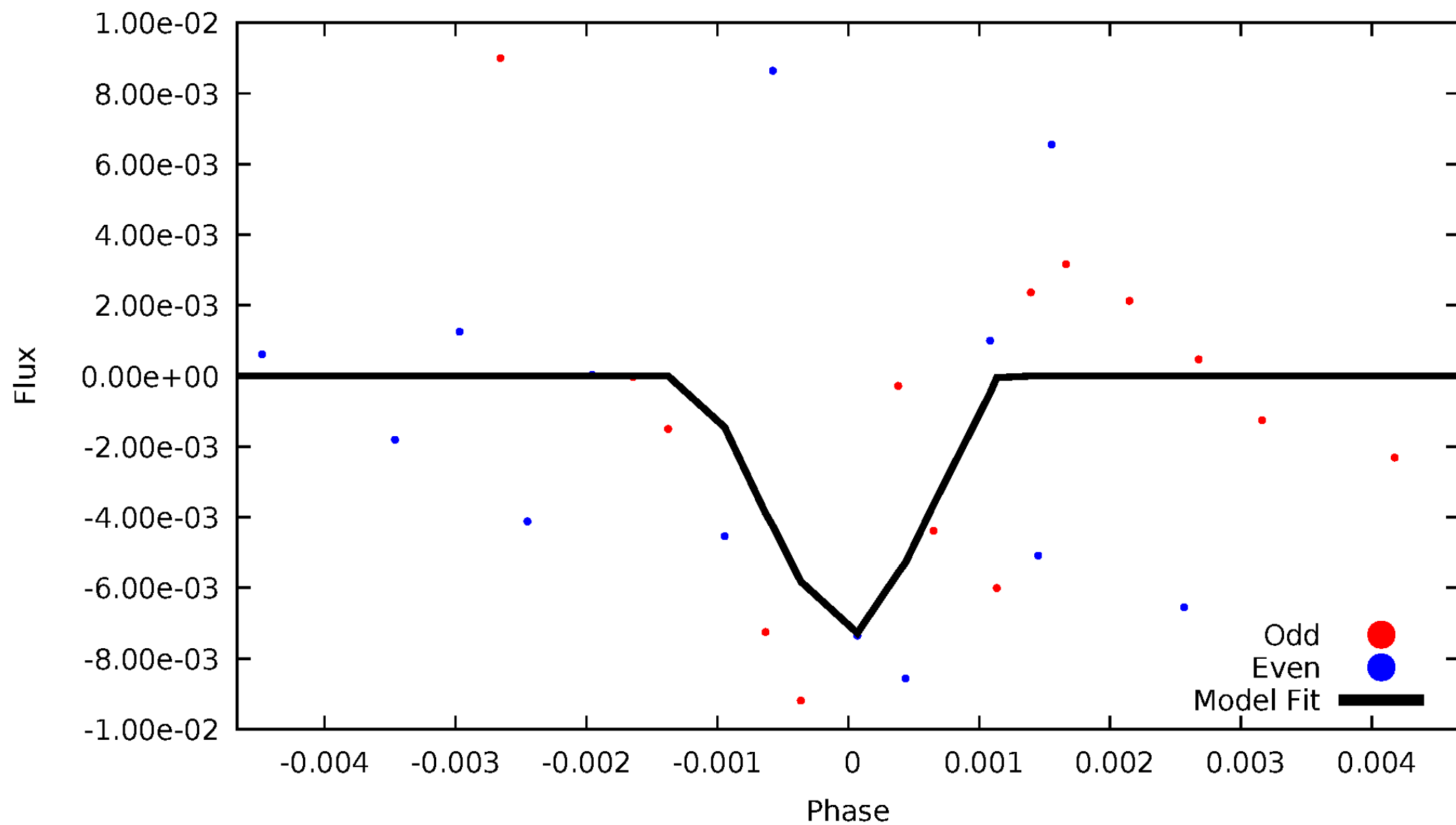
DV Odd/Even

TCE 002300529-03



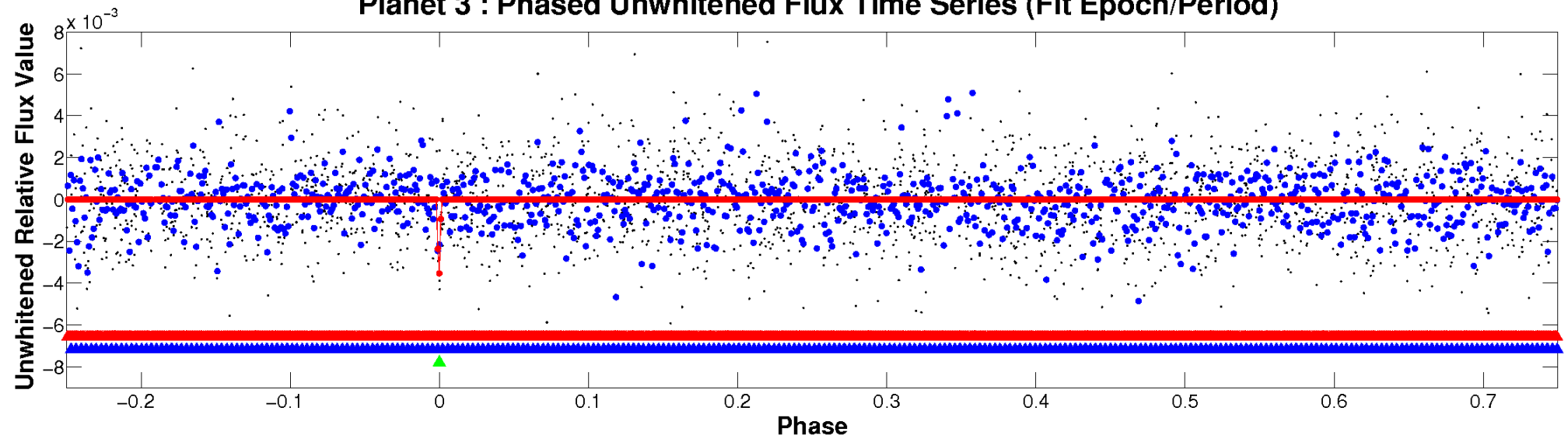
ALT Odd/Even

TCE 002300529-03

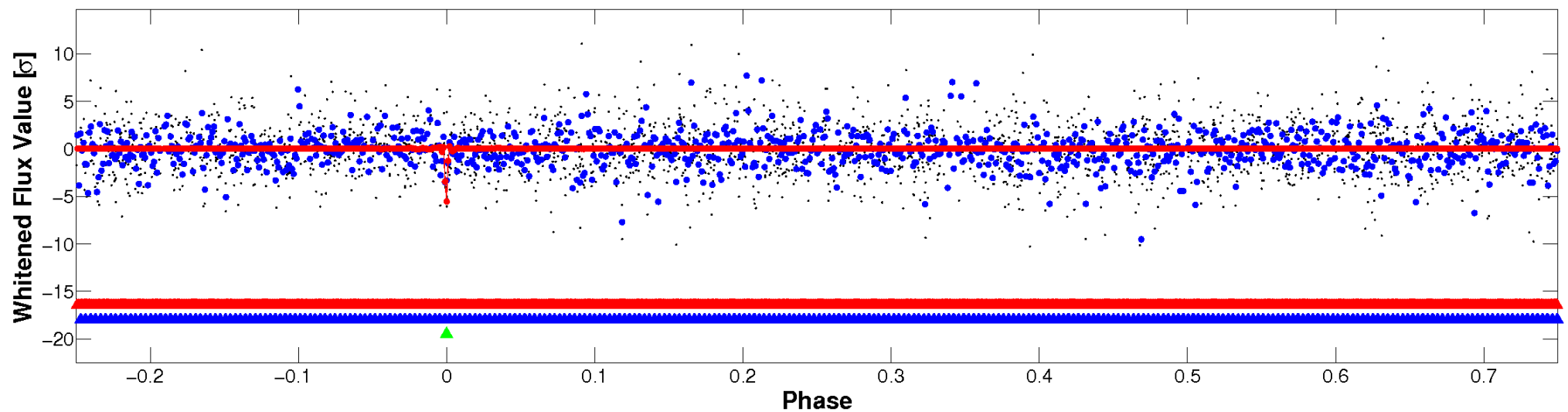


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

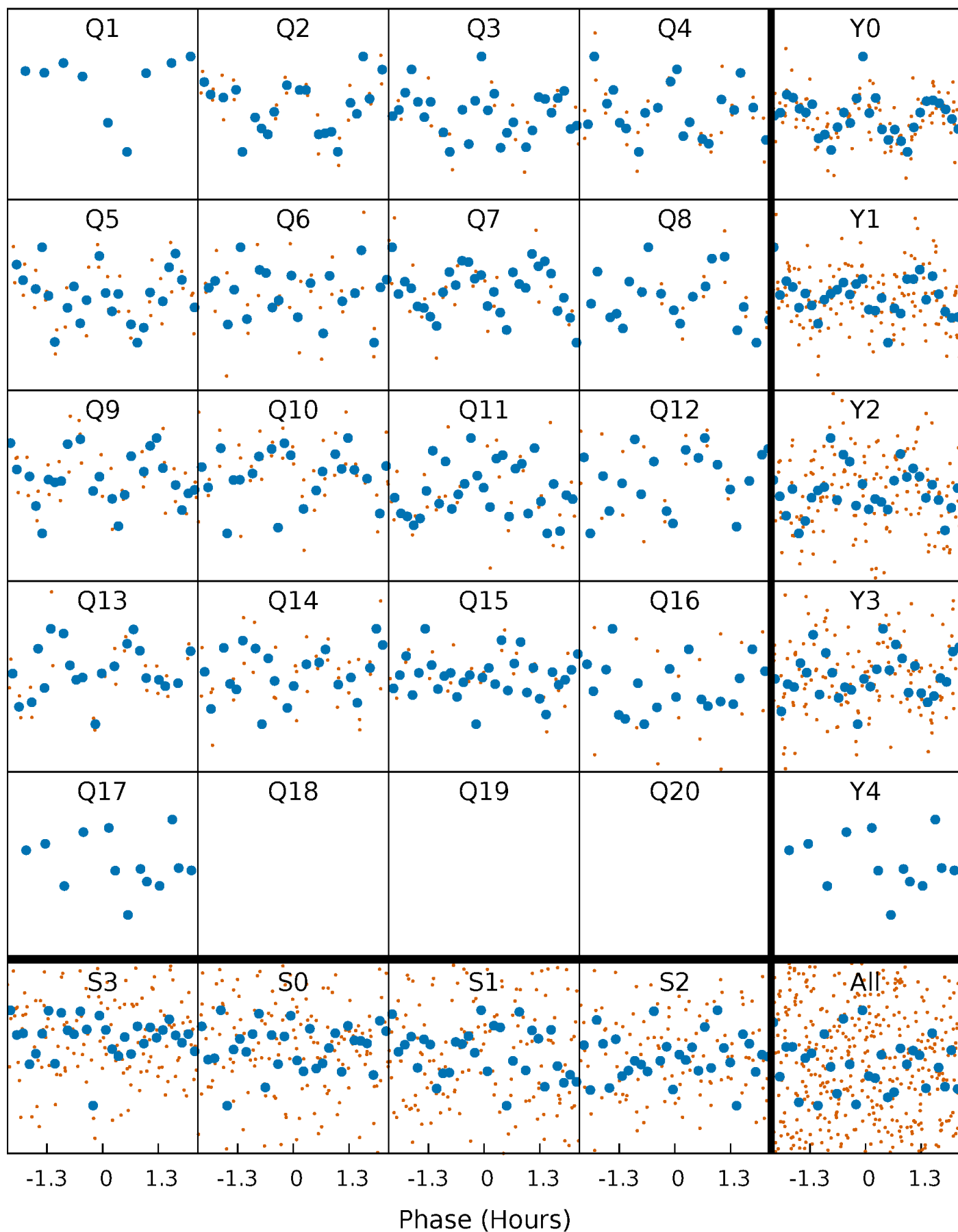


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



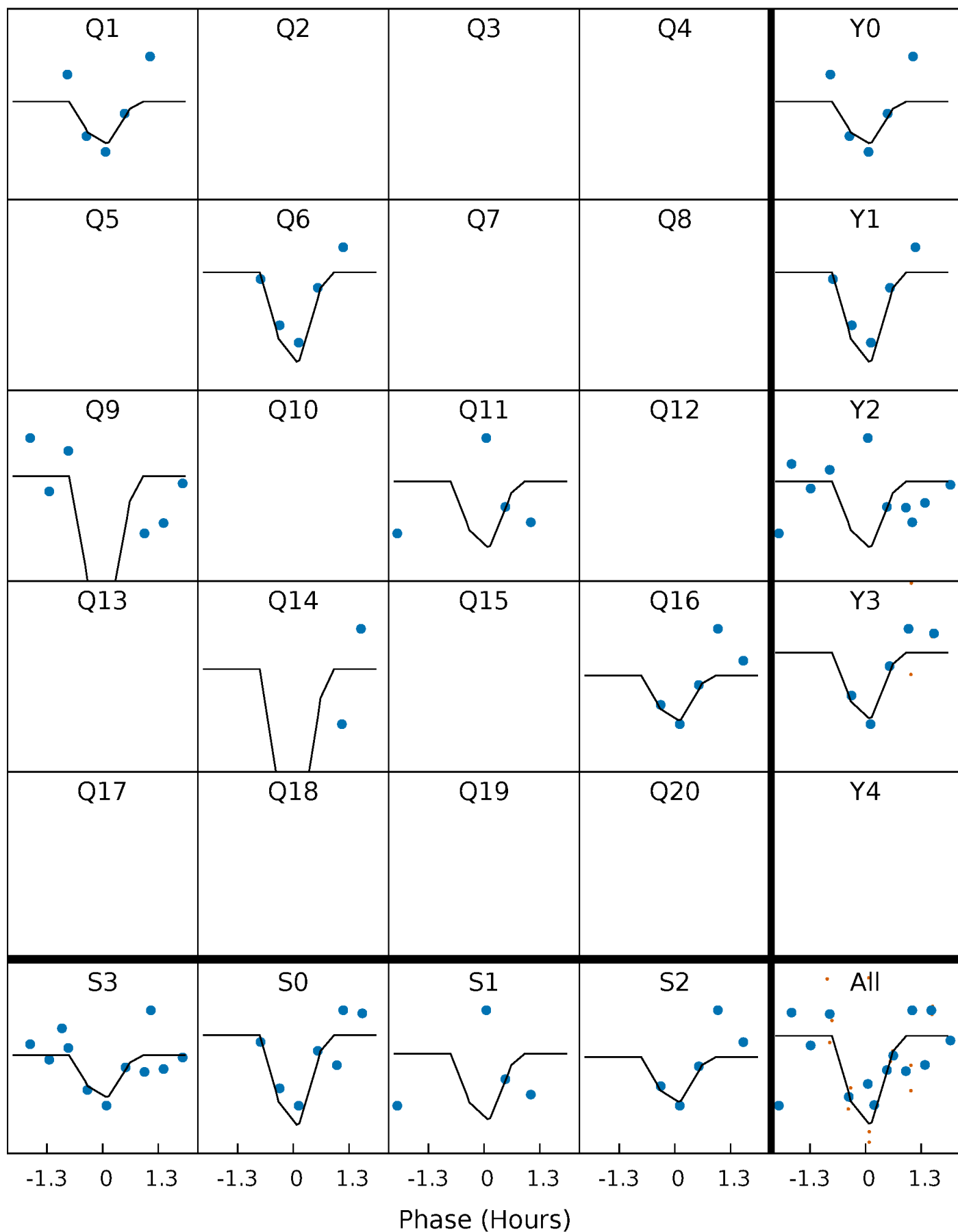
PDC Quarter-Phased Transit Curves

TCE 002300529-03 P= 20.178561 Days $T_0=148.449309$ (BKJD)



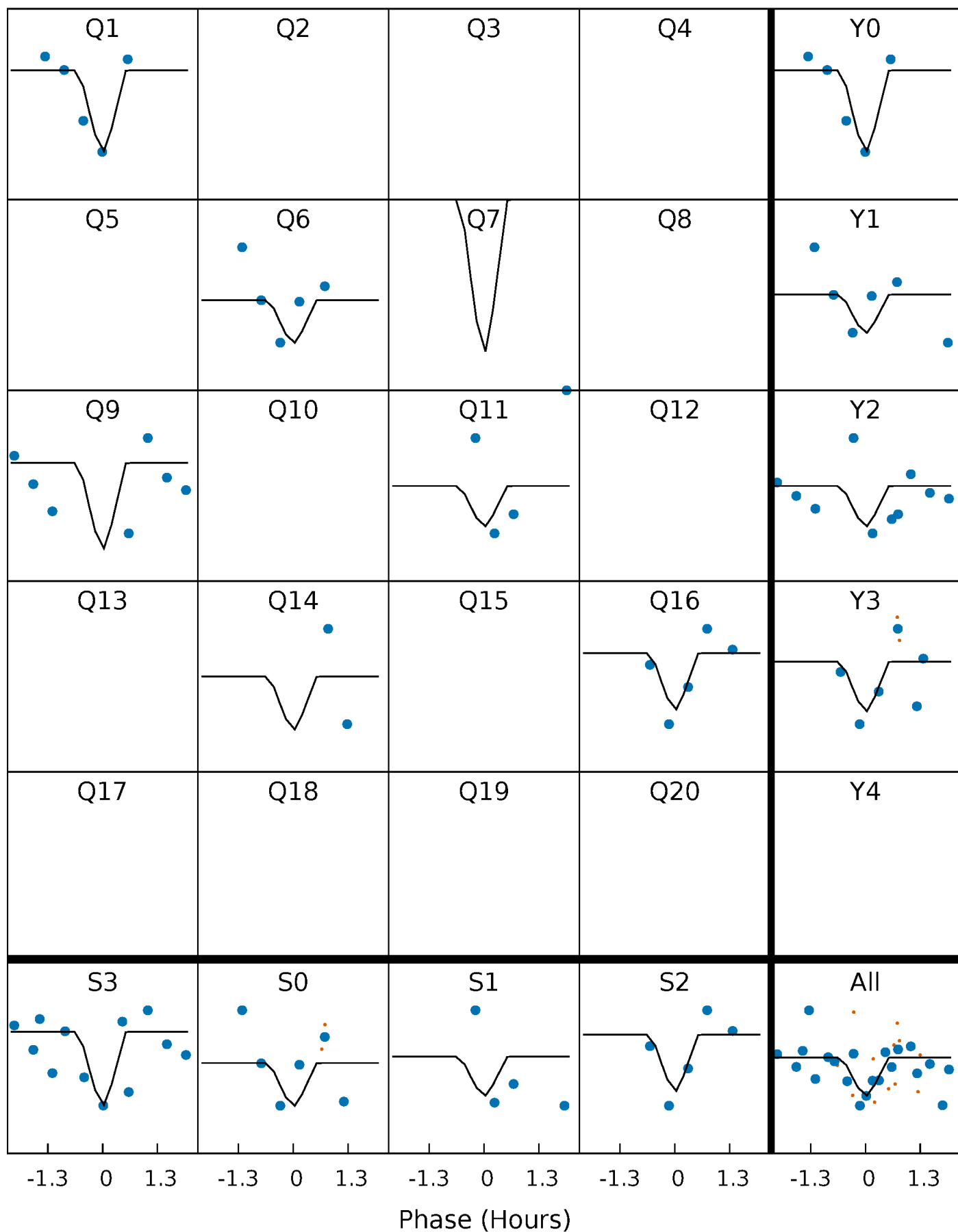
DV Quarter-Phased Transit Curves

TCE 002300529-03 P= 20.178561 Days $T_0=148.449309$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

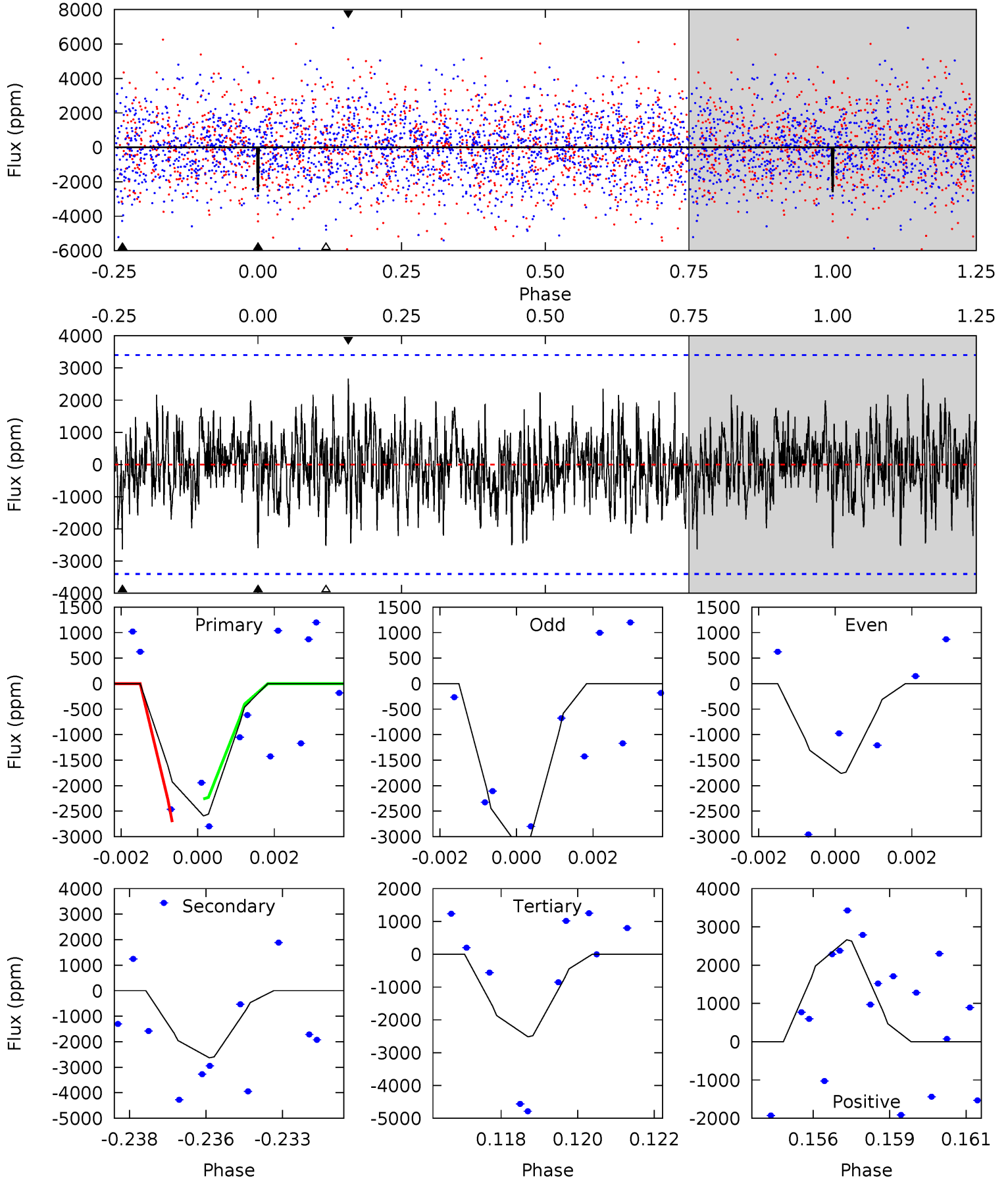
TCE 002300529-03 P= 20.178392 Days $T_0=148.471941$ (BKJD)



DV Model-Shift Uniqueness Test

002300529-03, P = 20.178561 Days, E = 128.270748 Days

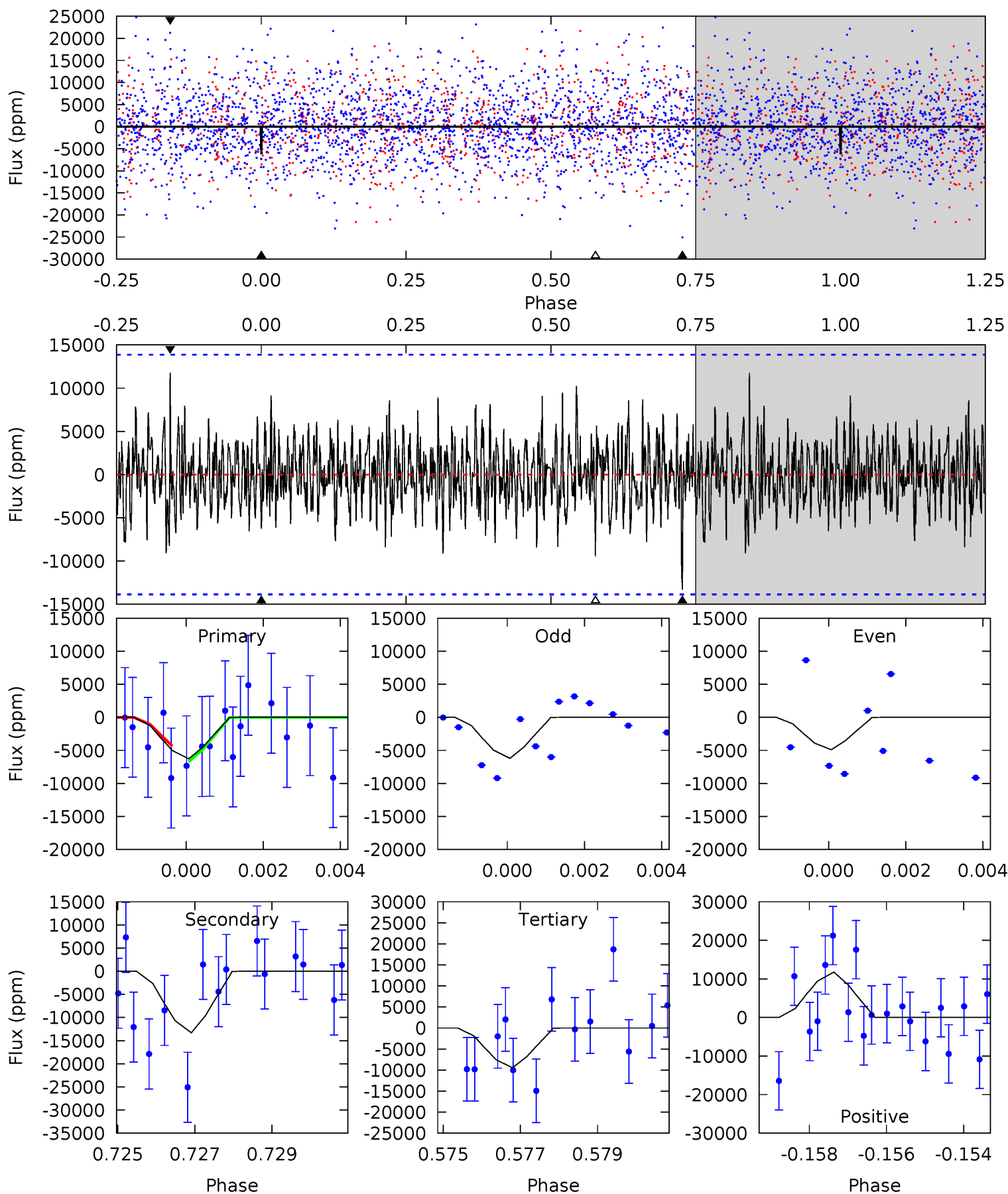
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.05 | 4.11 | 3.93 | 4.16 | 5.31 | 3.07 | 1.29 | 0.12 | -0.11 | 0.17 | -0.05 | 1.21 | 0.70 | 0.50 | 0.24 |



Alt Model-Shift Uniqueness Test

002300529-03, P = 20.178392 Days, E = 128.293549 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.41 | 5.11 | 3.63 | 4.52 | 5.32 | 3.09 | 1.21 | -1.22 | -2.11 | 1.48 | 0.59 | 0.25 | 0.98 | 0.47 | 0.40 |



Stellar Parameters For KIC 002300529

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7247^{+201}_{-345} | $4.111^{+0.128}_{-0.192}$ | $0.040^{+0.200}_{-0.350}$ | $1.834^{+0.563}_{-0.375}$ | $1.584^{+0.221}_{-0.265}$ | $0.361^{+0.279}_{-0.182}$ |
| | +3%/-5% | +3%/-5% | +500%/-875% | +31%/-20% | +14%/-17% | +77%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002300529-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------------|---------------------------|----------------------|------------------------|-------------------|
| DV | -2628 ± 640 | $47.94^{+50.11}_{-32.50}$ | 1476^{+116}_{-103} | 3719^{+2053}_{-783} | 17^{+158}_{-13} |
| Alt. | -13305 ± 2604 | $48.40^{+50.90}_{-32.27}$ | 1471^{+111}_{-92} | 5017^{+3972}_{-1196} | 89^{+662}_{-68} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

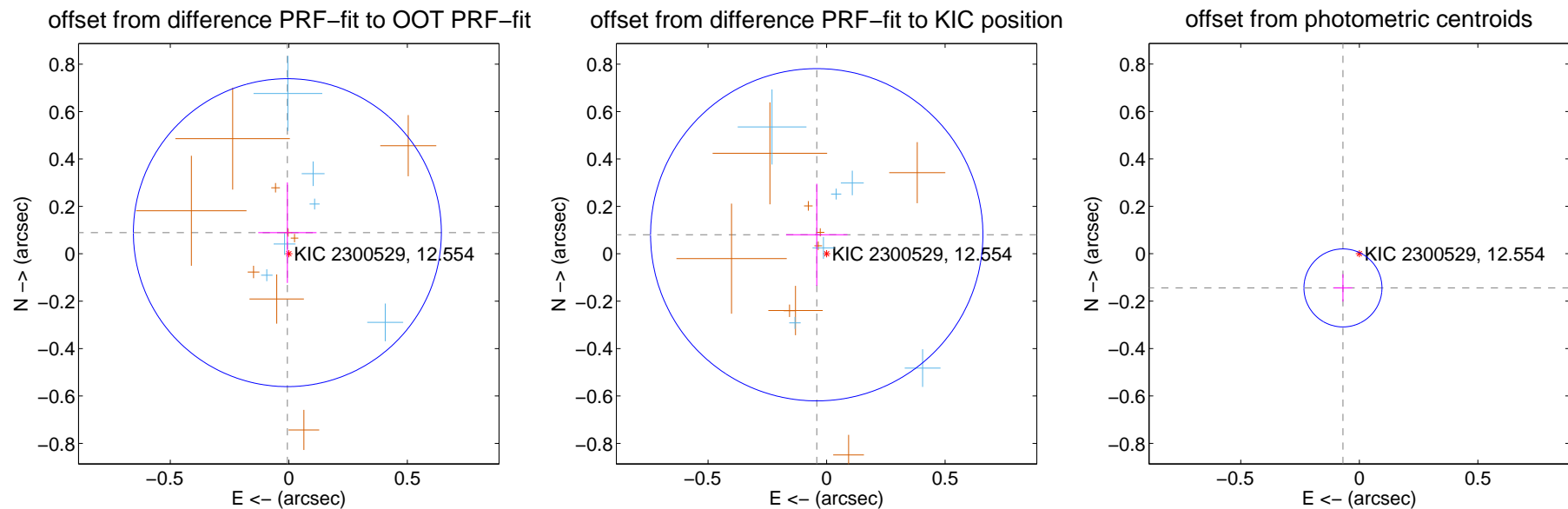
DV Centroid Data

Supplemental centroid analysis for 002300529-03. Kepler magnitude: 12.55. Transit SNR 11.56

There are 6 quarters with good PRF difference image offsets

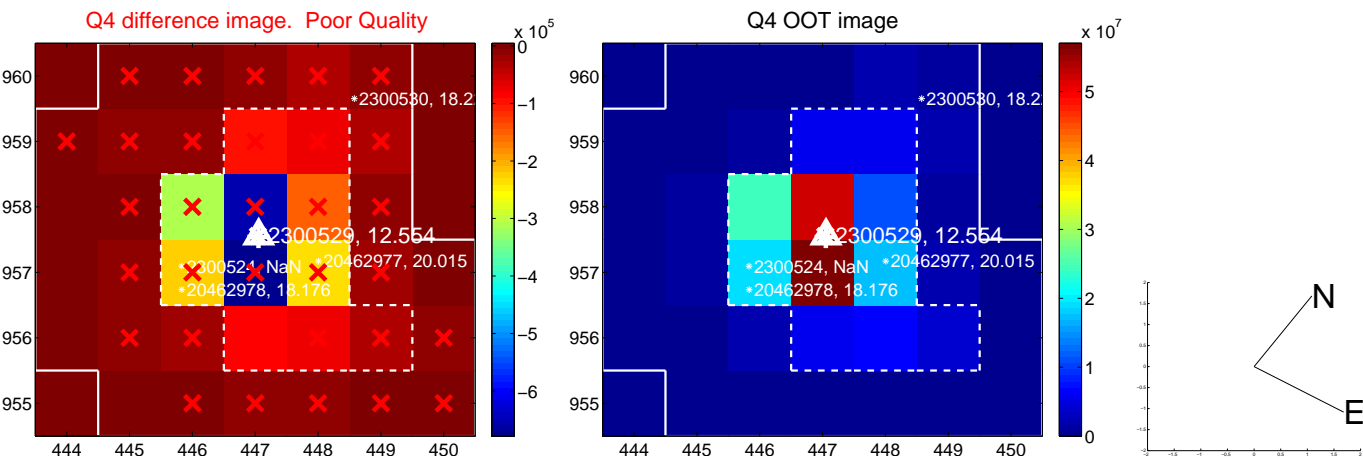
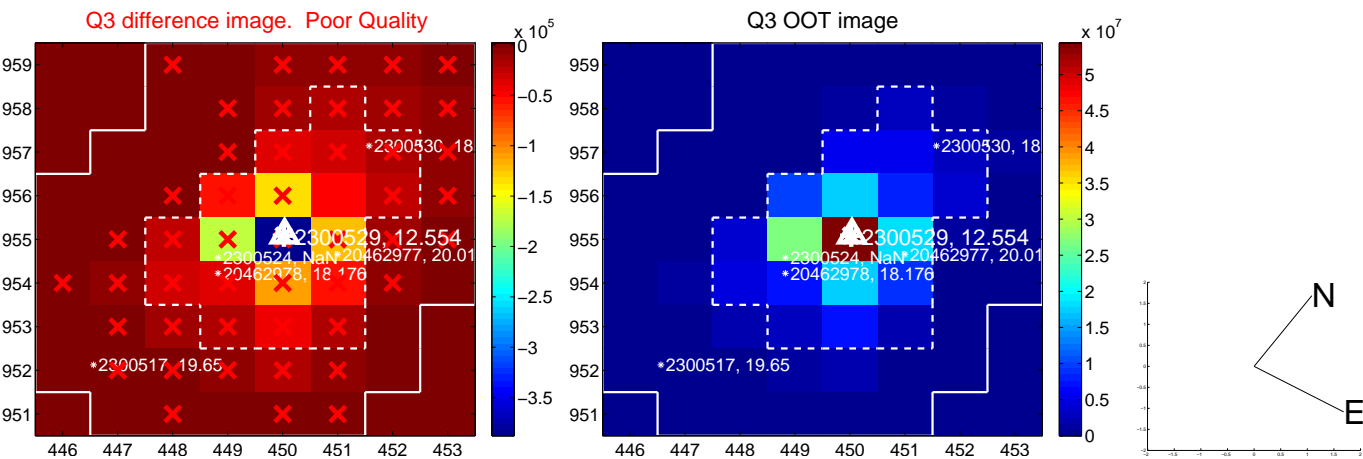
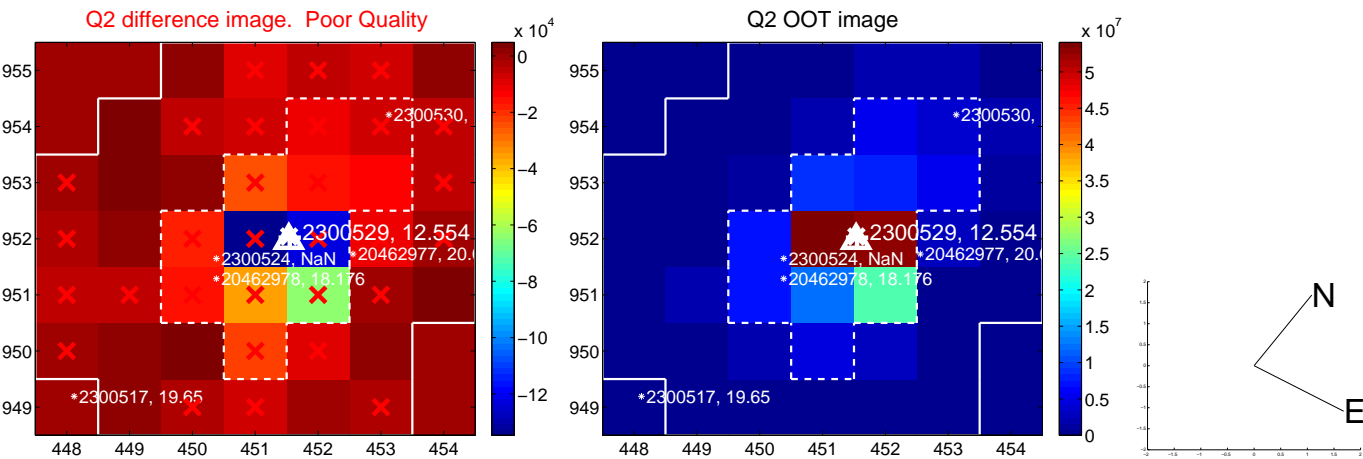
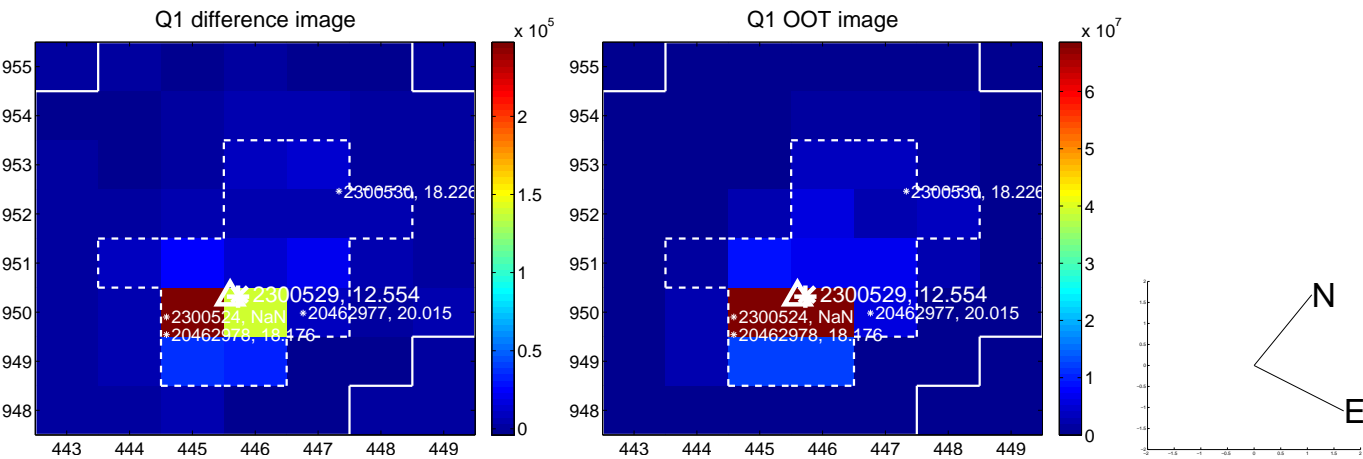
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.089 ± 0.217 | 0.41 | 0.006 ± 0.123 | 0.089 ± 0.212 |
| PRF-fit source offset from KIC position | 0.090 ± 0.234 | 0.39 | 0.042 ± 0.130 | 0.080 ± 0.215 |
| photometric centroid source offset | 0.16 ± 0.05 | 2.92 | 0.07 ± 0.04 | -0.14 ± 0.06 |

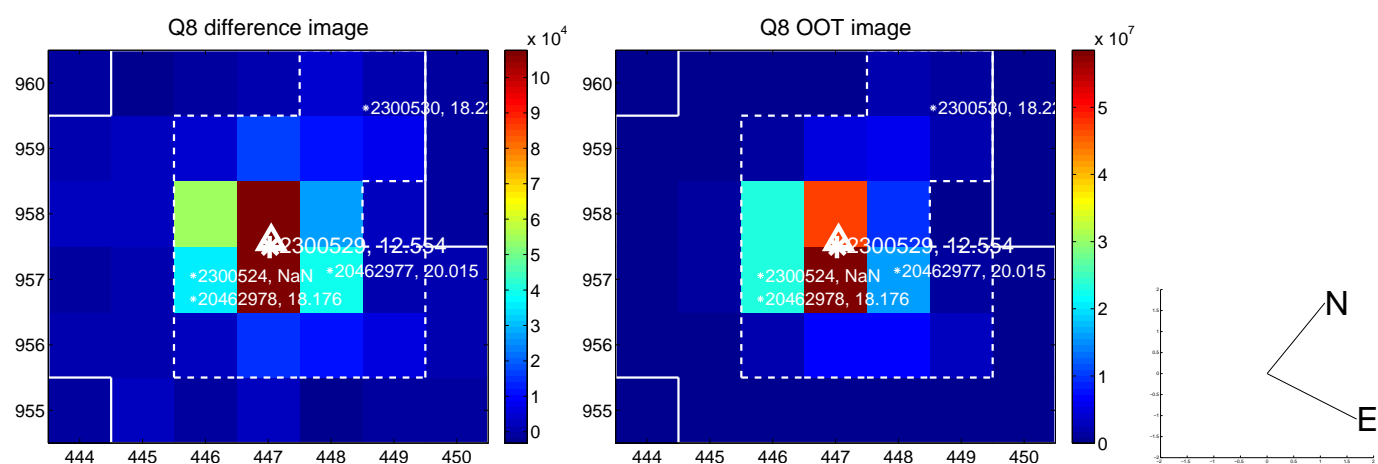
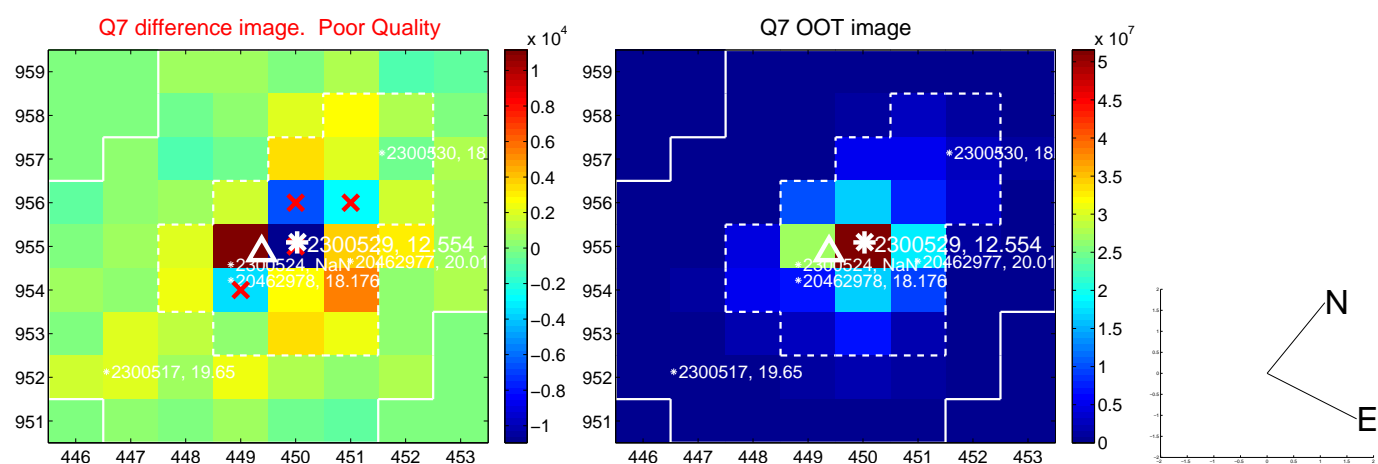
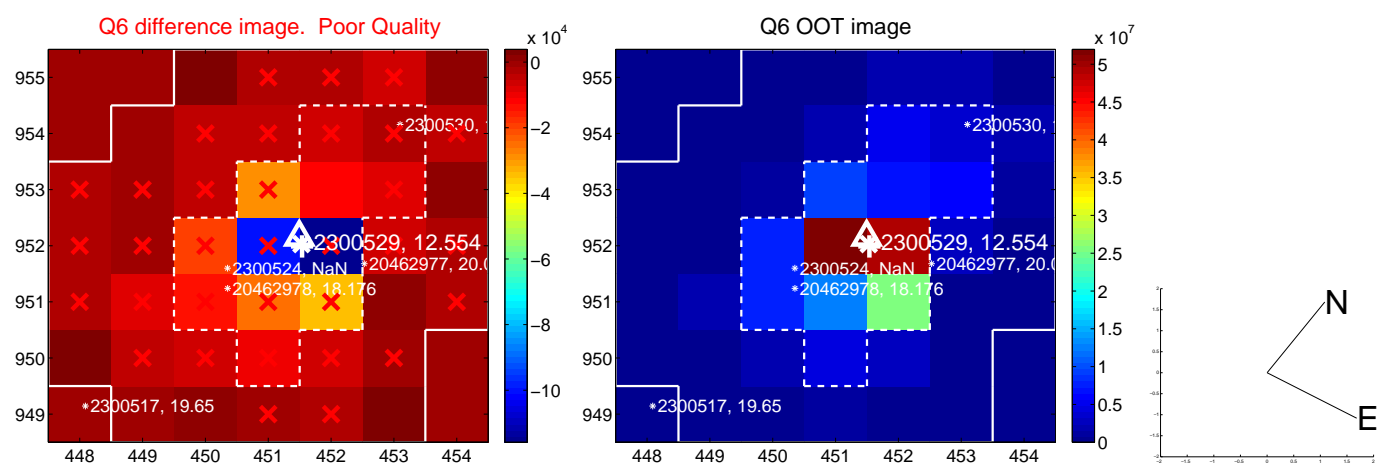
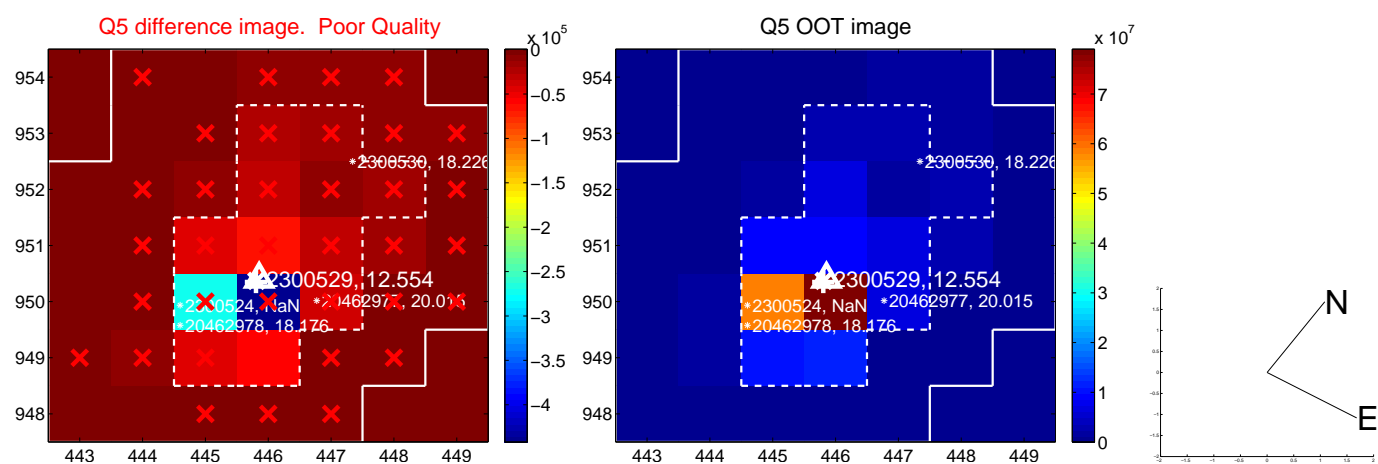


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

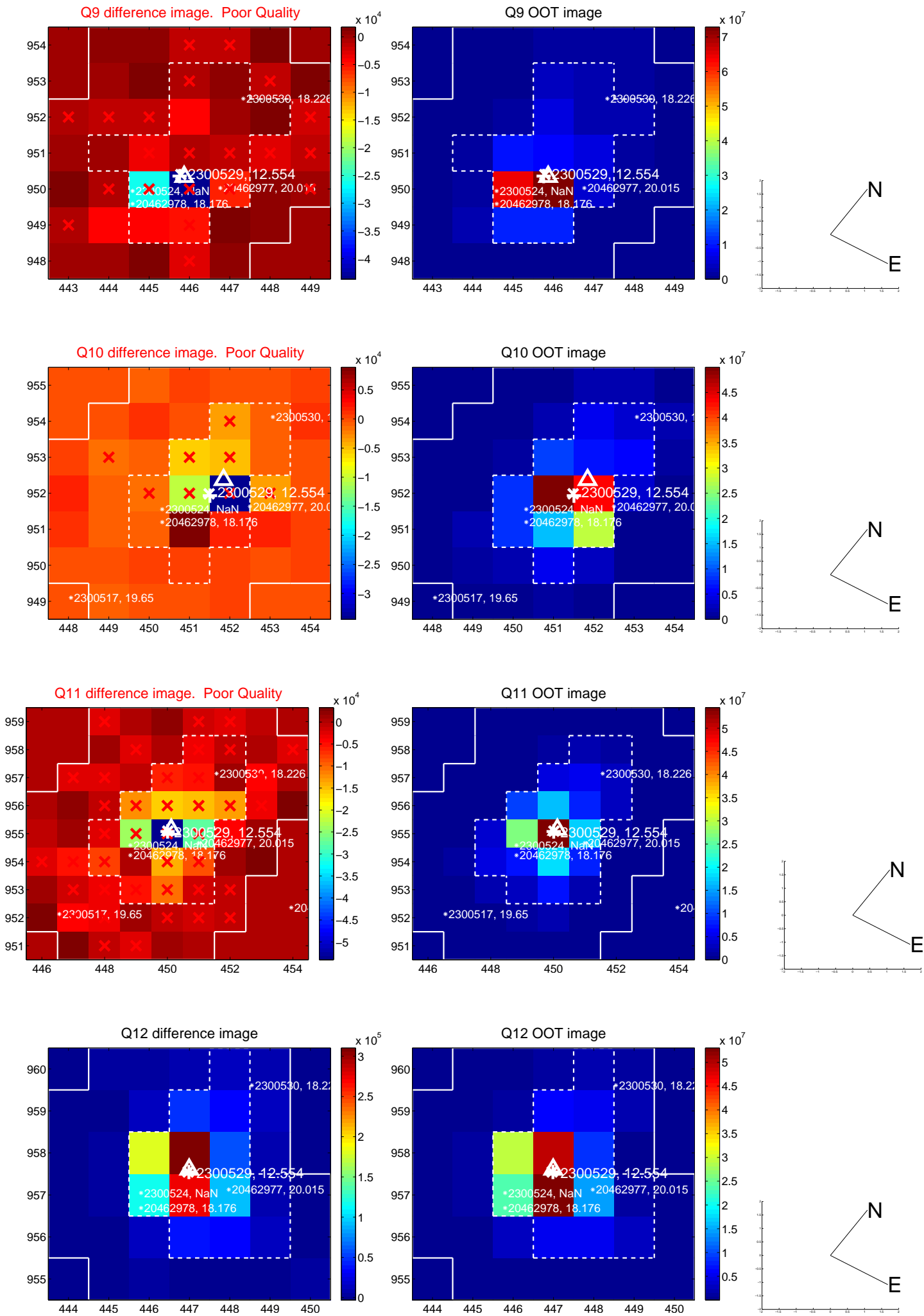
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



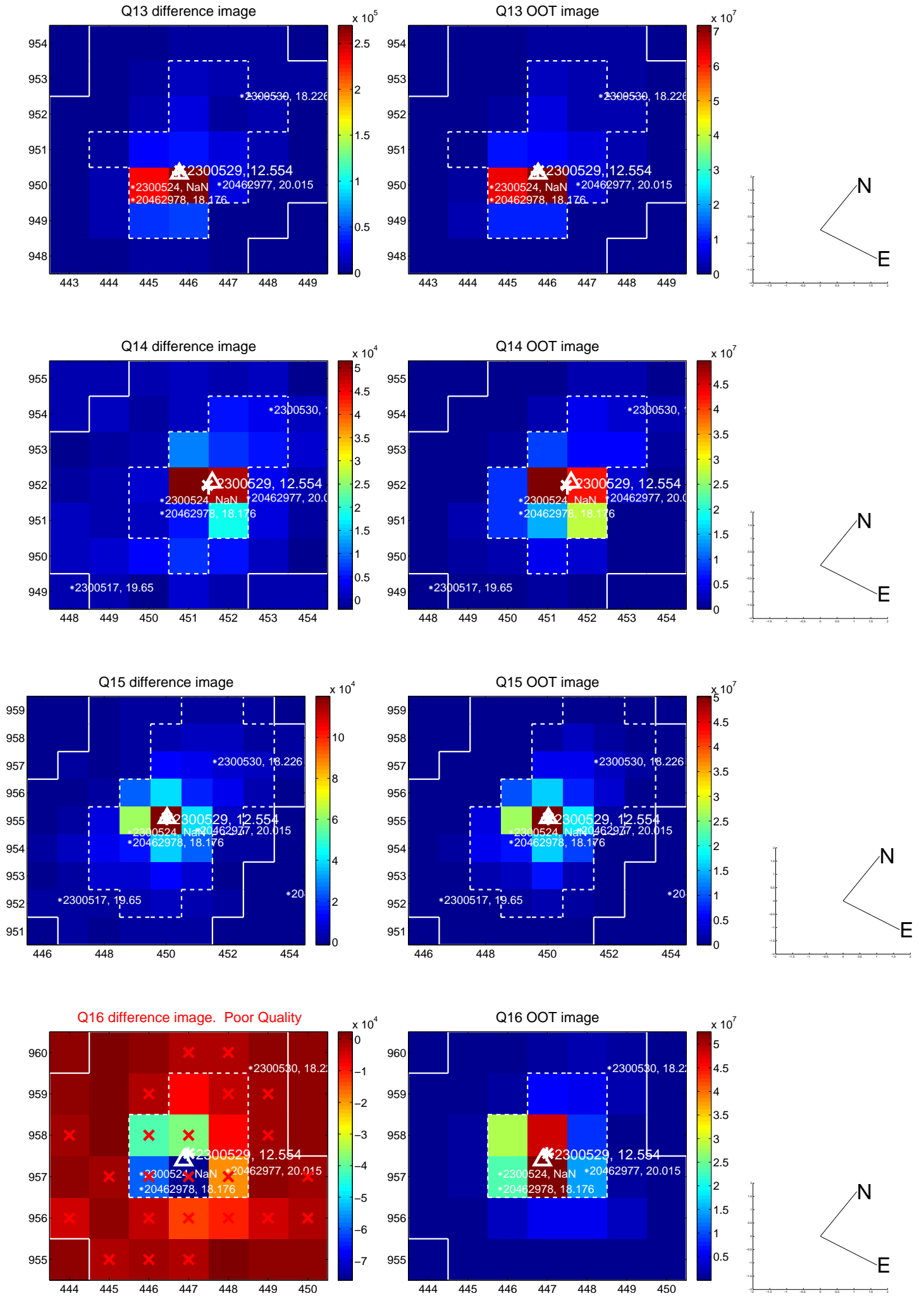
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



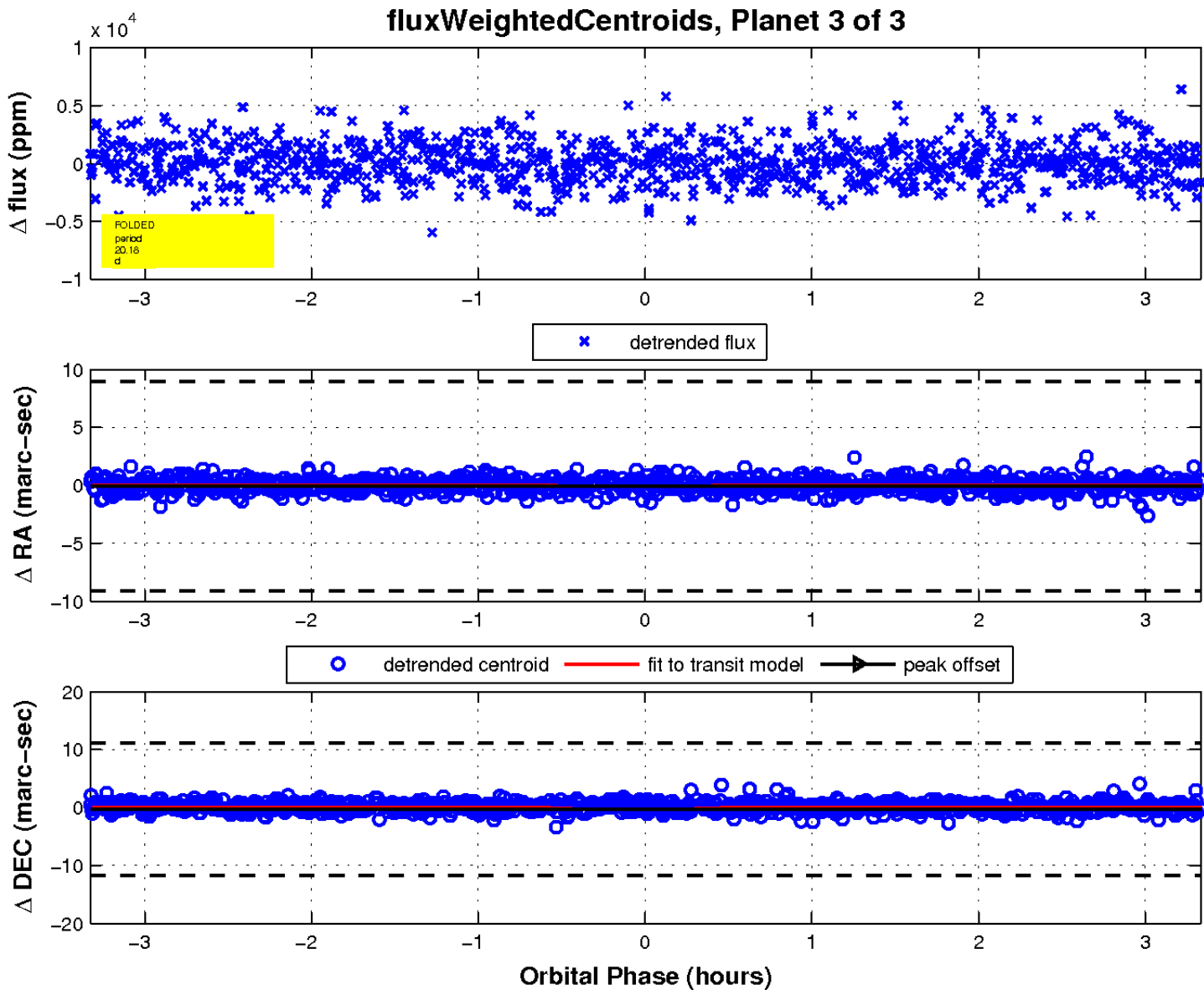
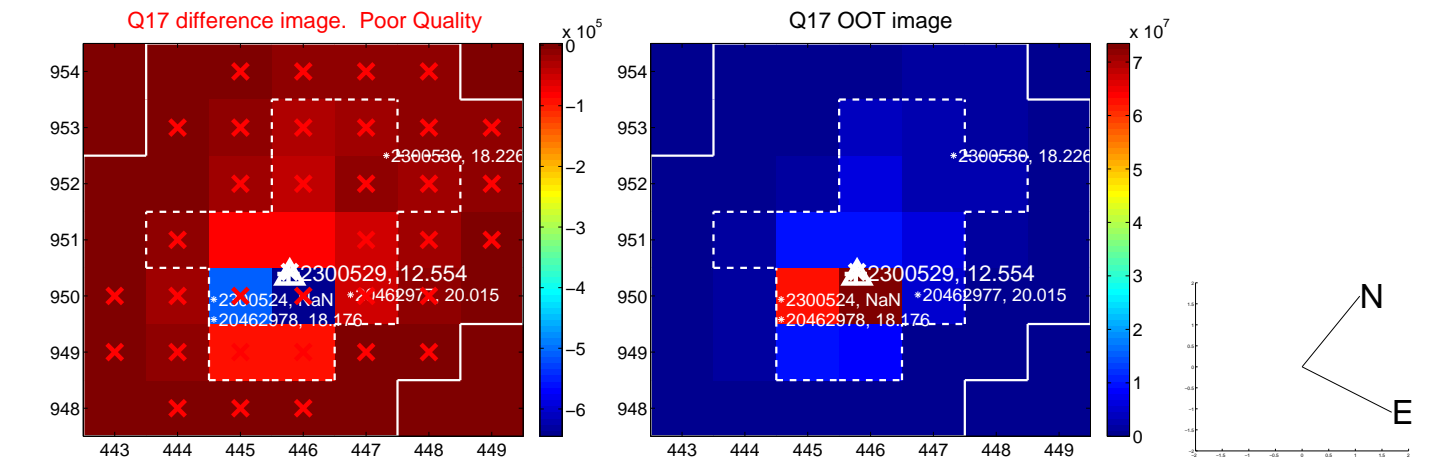
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

